

CHROMOSOME NUMBERS IN ANGIOSPERMS II

BY

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With so large a number of workers in many countries reporting on chromosomal studies of many species and varieties of plants it has become desirable to collect the results of their investigations in a uniform way and at regular intervals.

The present list of chromosome numbers has been prepared to supplement a previous one (GAISER, 1926) with the results of investigations reported between 1925 and the end of the year 1928. In order that it might be an adequate supplement at the present time, all older references previous to 1925 have been included as well as additions and corrections to the first list covering the period 1925 to 1928. It is planned to publish hereafter, annual supplemental lists in *Resumptio Genetica* to keep the results of investigations up to date until such time as their use to workers seems to have expired.

In collecting results so that they will be of most benefit it has seemed important that the investigators should know, as nearly as possible, the exact species or varieties that others have investigated. For this reason the names of varieties have always been listed. Whenever the authority for a species name had been given by a writer it has been included. Though this may not seem necessary in a large percentage of cases because the chromosome number given for a species name with or without the authority is the same, nevertheless, in looking through the list, cases will be found where a species of different authorities shows different numbers.

Following the plan of the previous list, two columns (n and $2n$) have been arranged so that the haploid or diploid chromosome number might be inserted according as the number had been determined

in reduction or somatic divisions or in both. The same method has been followed of indicating univalent, trivalent or tetravalent chromosomes by sub-figures in the haploid column. Wherever other than bivalent chromosomes have been reported, the „n” column includes the number of such as the numerator over the denominator 2 to indicate the approximate haploid number. The species and varieties have been listed in alphabetical order. Wherever species have been arranged in sections by the investigators such arrangement has been followed in the list and foot-notes include references to the classification followed. The arrangement of species under families and orders is according to ENGLER and GILG (1919).

This compilation has been made possible by the use of volumes in many libraries in the United States and Canada. The writer wishes especially to express gratitude to the libraries of the United States Department of Agriculture, Columbia University, the New York Botanical Garden, Toronto University, the Royal Canadian Institute and the Library of Congress for the great help they have given, as well as to other university libraries which have contributed assistance by inter-library loans.

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DICOTYLEDONEAE

	n	2n	
VERTICILLATAE.			
CASUARINACEAE			
<i>Casuarina equisetifolia</i> FORST			
prol.	12		WETZEL, 1928.
" <i>montana</i> LESCHEN			
prol.	12		" "
" <i>quadrivalvis</i> ¹⁾ . . .	8-12		JUEL, 1903a.
" <i>stricta</i> AIT.	12		WETZEL, 1928
PIPERALES.			
SAURURACEAE			
<i>Houttynia cordata</i> THUNB. . .		52-56	SHIBATA & MIYAKE, 1908.
	ca. 50	100-104	SÖDERBERG, 1927.
<i>Saururus cernuus</i>	10		TÄCKHOLM & SÖDERBERG, 1918
PIPERACEAE			
<i>Piper Betel</i> L. var. <i>hispidula</i> .	16		JOHNSON, 1910.
" <i>subpeltatum</i>	12		PALM, 1915.
	20		HÄUSER, 1916.
<i>Peperomia blanda</i> HUMB.,			
BONPL. et KUNTH.	12		HÄUSER, 1916.
" <i>hispidula</i> A. DIETR.	12-14		JOHNSON, 1914.
" <i>incana</i>	11		ABELE, 1924.
" <i>magnoliifolia</i> (JACQ.)			
A. DIETR.	12		HÄUSER, 1916.
" <i>pellucida</i>	10-12		BROWN, 1908.
" <i>resediflora</i> ANDRÉ	12		HÄUSER, 1916.
" <i>sintensii</i>	8		BROWN, 1908.
SALICALES.			
SALICACEAE			
<i>Populus canadensis</i>	4	8	GRAF, 1921.
" <i>Eugeni</i>	19 ²⁾		BLACKBURN (1926), 1929.
" <i>generosa</i>	19 ²⁾		" " "
" <i>serotina</i>	19 ²⁾		" " "

¹⁾ According to ENGLER a. PRANTL, *C. quadrivalvis* LABILL. is synonymous with *C. stricta* AIT.

²⁾ Sex chromosomes were present so that ♀n = 18 + x and ♂n = 18 + x or 18 + v

SALICACEAE (continued)	n	2n	
<i>Populus</i> (continued)			
<i>Populus tremula</i>	4	8	GRAF, 1921.
„ <i>tremula</i> L.	19	38 ¹⁾	BLACKBURN & HARRISON 24
„ <i>tremuloides</i> MICHX.	19 ²⁾		ERLANSOHN & HERMANN, 17.
SALIX			
Section Albae			
<i>Salix alba</i> L.	38		HARRISON, 1922.
	38	76	BLACKBURN & HARRISON, 14
Section Phyllicifoliae			
<i>Salix Andersonia</i> Sm.	57		HARRISON, 1922.
	57+ ¹⁾	100+	BLACKBURN & HARRISON, 4
Section Capreae			
<i>Salix aurita</i> L.	38		HARRISON, 1922; BLACKBURN & HARRISON, 1922.
	38 ¹⁾	76	BLACKBURN & HARRISON, 1922.
„ <i>Caprea</i> L.	19		HARRISON, 1922; BLACKBURN & HARRISON, 1922; MEYER, 1925a.
	19	38	BLACKBURN & HARRISON, 1922.
	38 ²⁾		HARRISON, 1922.
„ <i>cinerea</i> L.	38		HARRISON, 1922; BLACKBURN & HARRISON, 1922.
	38	76	BLACKBURN & HARRISON, 1922.
Section Fragiles			
<i>Salix fragilis</i> L.	38 ¹⁾		HARRISON, 1922.
	38	76	BLACKBURN & HARRISON, 1922.
Section Purpurea			
<i>Salix purpurea</i> L.	19		HARRISON, 1922.
	19	34-40	BLACKBURN & HARRISON, 1922.
Section Amygdalinae			
<i>Salix triandra</i>	19		HARRISON, 1922.
„ <i>triandra</i> L. (from Bedfordshire)	19	38	BLACKBURN & HARRISON, 1922.
„ <i>triandra</i> L. (from Kew)	22	40+	„ „ „
Section Viminalis			
<i>Salix viminalis</i> L.	19 ¹⁾	38	„ „ „
„ <i>viminalis</i> L. var. <i>yezoensis</i> Schneider	19 ⁴⁾		SINOTO, 1928a.

¹⁾ BLACKBURN & HARRISON (1926) found one lobed chromosome apparently homologous with a smaller chromosome. As a result they concluded that „some evidence exists of heterochromosomes, probably sex-determining in their import.”

²⁾ Eighteen pairs of autosomes and an unequal pair of sex chromosomes were found.

³⁾ While *S. Caprea* is in the main a diploid form, a tetraploid race indistinguishable in the field from the commoner diploid type was found.

⁴⁾ An unequal pair of chromosomes was distinguishable.

SALICACEAE (continued).		n	2n	
SALIX (continued).				
Section (?) ¹⁾				
<i>Salix japonica</i> THUNB.	19 ²⁾		SINOTO, 1928a.	
" <i>leucopithecia</i> KIMURA	19 ²⁾		" "	
" <i>melanostachys</i> MAKINO	19 ²⁾		" "	
" <i>sachalinensis</i> Fr. SCHMIDT	19 ²⁾		" "	
MYRICALES.				
MYRICACEAE				
<i>Myrica rubra</i> S. et Z.	8		SUGIURA, 1927.	
JUGLANDALES.				
JUGLANDACEAE				
<i>Juglans californica</i>		34	BABCOCK, given by PAPENOE, 1915.	
" " WATS.		34	BABCOCK, 1915.	
" " var. <i>quercina</i>		34	BABCOCK, given by PAPENOE, 1915; BABCOCK, 1915.	
FAGALES.				
BETULACEAE				
<i>Carpinus betulus</i> L.	8		WETZEL, 1928.	
<i>Ostrya carpinifolia</i> SCOP.	8		" "	
<i>Corylus americana</i>	11		" 1927.	
" <i>americana</i> MILL.	11		" 1928.	
" <i>avellana</i>	11		" 1927.	
" <i>avellana</i> L.	11		" 1928.	
" <i>maxima</i>	11		" 1927.	
" <i>maxima</i> MILL.	11		" 1928.	
" <i>rostrata</i> AIT. var. <i>Mandschuria</i> REGEL	11		" "	
<i>Betula humilis</i> SCHRANK	14		" "	
" <i>nana</i> L.	14		" "	
" <i>pubescens</i>	28		HELMS & JØRGENSEN, 1925.	
" <i>verrucosa</i>	14		" " " 1925.	
" <i>verrucosa</i> × <i>B. pubescens</i>	21		" " " 1925.	
<i>Alnus cordata</i>	14		WETZEL, 1927.	
" <i>cordata</i> (LOIS). DESF.	14		" 1928.	
" <i>glutinosa</i>	14		" 1927.	
" <i>glutinosa</i> GAERTNER var. <i>vulgaris</i>	14		" 1928.	
" <i>incana</i> MOENCH.	14		" "	
" <i>japonica</i>	14		" 1927.	
" <i>japonica</i> SIEB. et ZUCC.	14		" 1928.	

¹⁾ The following 4 species were not classified under sections by SINOTO.

²⁾ An unequal pair of chromosomes was distinguishable.

BETULACEAE (continued).		n	2n	
<i>Alnus</i> (continued)				
<i>Alnus rubra</i>	14			WETZEL 1927.
" <i>rubra</i> BONG.	14			" 1928.
" <i>subcordata</i>	14			" 1927.
" <i>subcordata</i> C. A. MEY. . .	14			" 1928.
" <i>viridis</i> (CHAIX.) LAM. . .	14			" "
FAGACEAE				
<i>Fagus silvatica</i> L.	11			" "
<i>Castanea crenata</i> SIEB. et ZUCC.	11			" "
" <i>sativa</i> MILL.	11			" "
<i>Quercus cerris</i> L.		22		" "
<i>Quercus coccinea</i> MUENCH . .		8		COSENS 1912.
" <i>coccinea</i> WANGG.	11			WETZEL, 1928.
" <i>Dalechampii</i> TENORE . . .	11			" "
" <i>glandulifera</i> BLUME. . .	11			" "
" <i>Koehni</i> (ilex \times robur?) . .	11			" "
" <i>Libani</i> OLIV.	11			" "
" <i>macranthera</i> FISCH. u				
MEY.	11			" "
" <i>nigra</i> L.		22		" "
" <i>pontica</i> K. KOCH. . . .	11			" "
" <i>robur</i> L. pp. (<i>Q. pendu-</i>				
<i>culata</i>)	11			" "
" <i>sessilis</i> EHRH. (<i>Q. ses-</i>				
<i>siflora</i> SALISB.)	11			" "
URTICALES				
MORACEAE				
<i>Morus acidosa</i> GRIFF.	14	28		OSAWA, 1920.
" <i>alba</i> LINN ¹⁾	14			TAHARA, 1910.
	14	28		OSAWA, 1920.
" <i>atropurpurea</i> ROXB. . . .	14	28		" "
" <i>bombycis</i> KOIDZ. ¹⁾ . . .	14	28		" "
	14 ²⁾			SINOTO, 1928a.
" <i>indica</i>	14			TAHARA, 1910.
" <i>Kagayamae</i> KOIDZ. . . .	14	28		OSAWA, 1920.
" <i>multicaulis</i> PERR. ¹⁾ . .	14	28		" "
" <i>rotundifolia</i> KOIDZ. . . .	14	28		" "
" <i>atropurpurea</i> \times <i>M. alba</i>				
var. <i>Makado</i>		42		" "
<i>Morus</i> cultivated races ¹⁾ :				
<i>Akagi</i>	variable	42		" "

¹⁾ A great number of the cultivated races in Japan are considered to have been derived from *M. alba*, *M. bombycis* and *M. multicaulis*. The chromosome numbers were determined in 85 races (OSAWA, 1920).

²⁾ A pair of unequal chromosomes was distinguished by SINOTO

MORACEAE (continued)	n	2n	
<i>Morus</i> cultivated races (continued)			OSAWA, 1920.
<i>Akazuru</i>	14		
<i>Aoki-ichihei</i>	variable	42	" "
<i>Aoki-takasuke</i>	14		" "
<i>Aoshôdo</i>		28	" "
<i>Avato</i>	variable	42	" "
<i>Beniguki</i>	14	28	" "
<i>Benten</i>		28	" "
<i>Bazan-oha</i>		42	" "
<i>Date-akagi</i>		42	" "
<i>Eiji-wase</i>	14		" "
<i>Enshû-takasuke</i>		42	" "
<i>Enashi-guwa</i>		28	" "
<i>Fushimagari</i>		28	" "
<i>Ginryô</i>		28	" "
<i>Gobô</i>	variable	42	" "
<i>Gorôji-wase</i>		28	" "
<i>Goshoerami</i>	variable	42	" "
<i>Gumma-akagi</i>		42	" "
<i>Hachihei</i>	14		" "
<i>Heijirô</i>		42	" "
<i>Hikojiro</i>	14		" "
<i>Ichihai</i>		42	" "
<i>Isebudo</i>		42	" "
<i>Isemaguwa</i>		42	" "
<i>Izu-wase</i>	variable	42	" "
<i>Kairyô-nedzumigaeshi</i>		28	" "
<i>Kairyô-rosô</i>	14	28	" "
<i>Kairyô-wase-jûmonji</i>		28	" "
<i>Kahachi</i>	14		" "
<i>Kaneko</i>	variable	42	" "
<i>Kanra-sô</i>	14	28	" "
<i>Kasô</i>	14	28	" "
<i>Kaitaneo</i>		28	" "
<i>Kazaemon</i>		28	" "
<i>Kinbei</i>	variable	42	" "
<i>Komaki</i>	14	28	" "
<i>Kosaka</i>	14	28	" "
<i>Kôsen</i>	14		" "
<i>Koshiorihime</i>		42	" "
<i>Kozaemon</i>		42	" "
<i>Kumonryû</i>	14	28	" "
<i>Makado</i>		28	" "
<i>Mamono</i>	variable	42	" "
<i>Memurasaki</i>		42	" "

MORACEAE (continued)	n	2n	
<i>Morus</i> cultivated races (continued):			
<i>Mikuni-sô</i>		28	OSAWA, 1920.
<i>Moku-wase</i>		42	" "
<i>Murasaki-wase</i>	14	28	" "
<i>Naganuma</i>	14		" "
<i>Nagase</i>		28	" "
<i>Nakamagi</i>		28	" "
<i>Negoya-takasuke</i>		42	" "
<i>Nemurasaki</i>		42	" "
<i>Obata</i>	14	28	" "
<i>Ôgon</i>		42	" "
<i>Ôshima</i>		42	" "
<i>Ôshu-guwa</i>	variable	42	" "
<i>Ô-wase</i>		42	" "
<i>Ozuna</i>	variable	42	" "
<i>Rokunojô</i>		42	" "
<i>Sagami-wase</i>		42	" "
<i>Sagore</i>		28	" "
<i>Sanchû-takasuke</i>		42	" "
<i>Senmatsu</i>	14	28	" "
<i>Shidarc-guwa</i>		28	" "
<i>Shihôzaki</i>		42	" "
<i>Shimidzu-wase</i>	14	28	" "
<i>Shinamura</i>	14	28	" "
<i>Shigohachi</i>	14	28	" "
<i>Shimauchi</i>		42	" "
<i>Shônai-wase</i>	14	28	" "
<i>Sôsuke-wase</i>	14	28	" "
<i>Shiroshita</i>	14	28	" "
<i>Tago-wase</i>	variable	42	" "
<i>Taiyô</i>	variable	42	" "
<i>Takahashi</i>		28	" "
<i>Takara-sô</i>		28	" "
<i>Tôsuke</i>		42	" "
<i>Tsuruta</i>	variable	42	" "
<i>Yamato-wase</i>		42	" "
<i>Yanagita</i>	variable	42	" "
<i>Yatsubusa</i>	14	28	" "
<i>Yoshiuchi</i>		28 ¹⁾	" "
<i>Zenzô</i>		42	" "
<i>Cudrania triloba</i> HANCE	28 ¹⁾		SINOTO, 1928a.

¹⁾ A pair of unequal chromosomes was distinguished by SINOTO.

MORACEAE (continued)	n	2n	
Ficus ¹⁾			
Section Eusyce			
<i>Ficus carica</i> LINN.	13	26	CONDIT, 1928.
„ <i>erecta</i> THUNB.		26	„ „
„ <i>palmata</i> FORSK.	13	26	„ „
„ <i>pseudo-carica</i> MIQ.		26	„ „
Section Urostigma			
<i>Ficus elastica</i> ROXB.		26	„ „
„ <i>rubiginosa</i> DESF.		26	„ „
Section Neomorpha			
<i>Ficus glomerata</i> ROXB.		probably 24	„
<i>Humulus japonicus</i> SIEB. et			
Zucc.	8		WINGE, 1914.
„ <i>japonicus</i>	10 ²⁾	20	TOURNOIS, 1914; WINGE, 1917, 1923.
		16	BARTLETT, 1915b.
„ <i>japonicus</i> (male)	7+13 ³⁾	17	KIHARA, 1928.
„ <i>japonicus</i> (plants of unknown sex)		16-17	„ „
„ <i>lupulus</i> L.	10 ³⁾	20	TOURNOIS, 1914; WINGE, 1914, 1917, 1923.
		20	BARTLETT, 1915b; WETTSTEIN, 1925.
<i>Cannabis gigantea</i>		20 & 40	BRESLAWETZ ⁴⁾ , 1926; LANG- LET, 1927b.
„ <i>sativa</i>	10 ⁵⁾		STRASBURGER, 1910c; TOUR- NOIS, 1914; McPHEE, 1924;
		20 & 40	BRESLAWETZ ⁴⁾ , 1926; LANG- LET, 1927b.
„ <i>sativa</i> L.	10		SINOTO, 1928a.
„ <i>sativa</i> var. <i>Karafuto</i>	10	20	HIRATA, 1924.
„ <i>sativa</i> var. <i>Tochigi</i>	10	20	„ „
„ <i>sativa</i> L. var. <i>Kij DC</i>		20 & 40	DE LITARDIÈRE, 1925.
„ <i>sativa</i> L. var. <i>commu- nis</i>		20 & 40	„ „ „

¹⁾ Classification under sections is according to KING (1887—1888).

²⁾ WINGE (1923) found heterochromosomes and gave the chromosome complex as: ♀ 2n = 18 + x + x; ♂ 2n = 18 + x + y; ♀ n = 9 + x; ♂ n = 9 + x or 9 + y.

³⁾ According to KIHARA (1928) the complex is represented by ♂ n = 7 + y₁ + x + y₂ and ♀ n = 7 + x + x.

⁴⁾ By this investigator, the cells of the central cylinder of root-tips were found to contain 20 chromosomes, while the outer cells contained 40.

⁵⁾ STRASBURGER in 1909 had counted only 8 chromosomes.

URTICACEAE		n	2n	
<i>Urtica dioica</i> L.	16			STRASBURGER, 1910b.
	24 ¹⁾			MEURMAN, 1925 a, b.
			48-49	HEITZ, 1926.
„ <i>Dodarti</i>			24	„ „
„ <i>pilulifera</i>			24	„ „
„ <i>urens</i> L.	16			STRASBURGER, 1910b.
	12			MEURMAN, 1925a, b.
<i>Elatostema acuminatum</i>	16			STRASBURGER, 1910b.
„ <i>sessile</i>			32	STRASBURGER, 1910b.
SANTALALES				
SANTALACEAE				
<i>Thesium intermedium</i> L. . . .	probably	probably		
	12	24		MODILEWSKI, 1928b.
PROTEACEAE				
<i>Protea lepidocarpon</i> R. BR. . .	12			BALLANTINE, 1909.
LORANTHACEAE				
<i>Dendrophthora gracile</i> EICH. .	9	18-20		YORK, 1913.
„ <i>opuntioides</i>				
(L) EICH.		18-22		„ „
<i>Viscum album</i>		20		PISEK, 1922.
	10	20		„ 1923.
BALANOPHORACEAE				
<i>Helosis guyanensis</i> RICH. . . .	18			UMIKER, 1920.
<i>Balanophora elongata</i> BL. . . .		ca. 16		ERNST, 1914.
„ <i>japonica</i>		94-112		KUWADA, 1928.
ARISTOLOCHIALES				
ARISTOLOCHIACEAE				
<i>Aristolochia clematitis</i>	7			SAMUELSON, 1914.
„ <i>fimbriata</i>	7			TÄCKHOLM & SÖDERBERG, 1918
„ <i>Sipho</i>	14			„ „ „ „
<i>Asarum europaeum</i>	ca. 12			„ „ „ „
RAFFLESIIACEAE				
<i>Rafflesia Patma</i> BL.	12			ERNST & SCHMID, 1913.
HYDNORACEAE				
<i>Hydnora africana</i> THUNB. . . .		24 ²⁾		DASTUR, 1921.
POLYGONALES				
POLYGONACEAE				
<i>Koenigia Islandica</i> L.	14			HAGERUP, 1926.
<i>Emex australis</i> STEINH.	10			JARETZKY, 1928c.
„ <i>spinosa</i> CAMPD.	10			„ 1927b, 1928c.

²⁾ MEURMAN (1925b) found heterochromosomes: $2n = 23 + x$ or $23 + y$.

¹⁾ In previous list, GAISER (1926), this number was printed in the haploid column. Twenty-three chromosomes were actually counted by DASTUR.

POLYGONACEAE (continued)

n

2n

RUMEX ¹⁾Section *Lapathum*Subsection *Eulapathum*

<i>Rumex alpinus</i>	10		KIHARA & ONO, 1926.
„ <i>alpinus</i> L.	10		JARETZKY, 1928c.
„ <i>Andraeanus</i>	60		KIHARA & ONO, 1926.
„ <i>aquaticus</i> L.		ca. 200	JARETZKY, 1928c.
„ <i>britannicus</i> L.		20	„ „
„ <i>conglomeratus</i> MURR. .		20	„ „
„ <i>cordifolius</i>	40		ROTH, 1906.
„ <i>crispus</i>	32		DUDGEON, 1918.
	30		KIHARA & ONO, 1926; KIHARA, 1927b.
„ <i>crispus</i> L.	30		JARETZKY, 1927a.
„ <i>Daivoo</i> MAKINO		ca. 60	„ 1928c.
„ <i>dentatus</i> L.	20	40	„ 1928c.
„ <i>domesticus</i>		40	KIHARA & ONO, 1926.
„ <i>flexuosus</i>	10		JARETZKY, 1927a.
„ <i>hydrolapathum</i>	100		KIHARA & ONO, 1926; KIHARA, 1927b.
„ <i>hymenosepalus</i>	50		KIHARA & ONO, 1926; KIHARA, 1927b.
„ <i>japonicus</i>	50		KIHARA & ONO, 1926; ONO, 1926a.
„ <i>limosus</i> THUILL. . . .		40	JARETZKY, 1928c.
„ <i>maritimus</i>	20		KIHARA & ONO, 1926.
„ <i>maritimus</i> L.	20	40	JARETZKY, 1927a.
„ <i>maritimus</i> L. var. <i>stenophyllus</i> ZAP.	20		JARETZKY, 1928c.
„ <i>obtusifolius</i>	20		KIHARA & ONO, 1926; KIHARA, 1927b.
„ <i>orientalis</i>	30		KIHARA & ONO, 1926.
„ <i>palustris</i> SM.		40	JARETZKY, 1928c.
„ <i>patientia</i>	30		KIHARA & ONO, 1926; KIHARA, 1927b.
„ <i>pulcher</i> L.		40	JARETZKY, 1928c.
„ <i>reticulatus</i> BESSER. .	20	40	„ „
„ <i>salicifolius</i>	10		KIHARA & ONO, 1926; KIHARA, 1927b.
„ <i>salicifolius</i> WEINM. .	10		JARETZKY, 1928c.
„ <i>sanguineus</i>	10		ONO, 1927b.
„ <i>sanguineus</i> L.	10	20	JARETZKY, 1928c.

Subsection *Bucephalophorus*

<i>Rumex bucephalophorus</i>	8		JARETZKY, 1927a.
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¹⁾ ENGLER & PRANTL's sections are *Lapathum* and *Acetosella*.

POLYGONACEAE (continued)		n	2n	
RUMEX (continued)				
Section <i>Acetosa</i>				
<i>Rumex acetosa</i>	8			ROTH, 1906.
„ <i>acetosa</i> L.	7, 8 ¹⁾	14, 15		KIHARA & ONO, 1923a, b, 1924; SINOTO, 1924.
			22 ²⁾	ONO & SHIMOTOMAI, 1928.
			29 ³⁾	„ „ „ „
„ <i>acetosa</i> (female)	7 ⁴⁾			ONO, 1928.
	15 ⁵⁾			„ „
			21 ⁶⁾	„ „
„ <i>acetosa</i> (intersexual) . .			22 ⁷⁾	„ „
„ <i>acetosa</i> L. var. <i>haematinus</i> KIHLMAN	7, 8			JARETZKY, 1928c.
„ <i>acetosa</i> L. var. <i>pretensis</i> WALLR.	7, 8			„ „
„ <i>acetosella</i>	16			ROTH, 1906.
	20, 21 ⁸⁾			MEURMAN, 1925a, b; KIHARA, 1925, 1927b.
„ <i>acetosella</i> L.	21, 22	42, 43		KIHARA, 1927a.
„ <i>arifolius</i>	8			ROTH, 1906.
„ <i>arifolius</i> (male)	7, 8 ⁹⁾			KIHARA & ONO, 1926.
„ <i>arifolius</i> ALL.	7, 8			JARETZKY, 1927b, 1928c.
„ <i>hispanicus</i>	8			ROTH, 1906.
„ <i>hispanicus</i> KOCH.	7, 8			JARETZKY, 1928c.
„ <i>lunaria</i> L.		20		„ „
„ <i>nivalis</i>	8			ROTH, 1906.
„ <i>nivalis</i> (male)	7, 8 ⁹⁾			KIHARA & ONO, 1926.
„ <i>roseus</i> L.	10			JARETZKY, 1928c.
„ <i>rugosus</i> CAMPD.	7, 8			„ „

¹⁾ The chromosome complex is written ♀ $2n = 12a + M + M$; ♂ $2n = 12a + m_1 + M + m_2$; ♀ $n = 6a + M$; ♂ $n = 6a + M$ or $6a + m_1 + m_2$; by KIHARA & ONO. ONO (1926c) describes the heterochromosomes as consisting of a larger two-armed X chromosome and 2 smaller Y (Y_1 and Y_2) chromosomes.

²⁾ The chromosome complex is written $2n = 18 + 2x + 2y$.

³⁾ The chromosome complex is written $2n = 24 + 3x + 2y$.

⁴⁾ In the diakinesis of megaspore mother cells, one pair of chromosomes was very much larger than the others and considered to be the pair of X chromosomes.

⁵⁾ This unreduced number was found in the heterotypic nuclear division of some pollen mother cells.

⁶⁾ In this triploid female the chromosome complex is written $2n = 18 + 3X = 21$; ♀ $n = 12 + X$; ♂ $n = 6 + X$.

⁷⁾ In this the chromosome complex is $2n = 18 + 2x + 2y = 22$.

⁸⁾ MEURMAN (1925b) reports the chromosome complex ♂ $n = 19 + 2x$ or $19 + Y$. KIHARA (1925) reports ♂ $2n = 38a + X + X + Y$; ♀ $2n = 38a + X + X + X + X$.

⁹⁾ The chromosome complex in these two species is written ♂ $n = 6 + X$, or $6 + Y + Y$.

POLYGONACEAE (continued)	n	2 n	
RUMEX (continued)			
Section <i>Acetosae</i> (continued)			
<i>Rumex scutatus</i>	8		ROTH, 1906.
	10 ¹⁾		NODA, 1926; KIHARA & ONO, 1926.
„ <i>scutatus</i> L. var. <i>glaucus</i>		20 ²⁾	JARETZKY, 1928c.
„ <i>thyrsoflorus</i> FINGERH.	7, 8 ³⁾		MEURMAN, 1925a, b.
„ <i>tuberosus</i> L.	7, 8		JARETZKY, 1928c.
„ <i>vesceritensis</i> MURB.		20	„ „
„ <i>vesicarius</i> L.		20	„ „
	9	18	ONO, 1928.
„ <i>verticillatus</i> ⁴⁾	ca. 24		FINK, 1899.
„ <i>sp?</i>	20		ONO, 1926.
<i>Rheum crassinervium</i> FISCHER	22		JARETZKY, 1928c.
„ <i>Emodi</i> WALL.	11		„ „
„ <i>officinale</i> BAILL.	11		„ 1927b.
	11	22	„ 1928c.
„ <i>palmatum</i> L.	11	22	„ 1927b 1928c.
„ <i>rhaponticum</i> L.	22		„ 1928c.
„ <i>spiciforme</i> ROYLE.	11		„ „
„ <i>undulatum</i> L.	22		„ 1927b 1928c.
<i>Oxyria digyna</i> HILL.	7		KIHARA & ONO, 1926; KIHARA, 1927b; JARETZKY, 1928c.
„ <i>elatior</i> R. BR.	7		ONO, 1928; JARETZKY, 1928c.
POLYGONUM ⁵⁾			
Section <i>Bistorta</i>			
<i>Polygonum affine</i> DON.	11	22	JARETZKY, 1928c.
„ <i>ambiguum</i> MEISSN.	22		„ „
„ <i>bistorta</i> L.	22		„ „
„ <i>sphaerostachyum</i>			
MEISSN.		22	„ „ c
„ <i>vaccinifolium</i> WALL.	11		„ „
„ <i>viviparum</i> L.		110(?)	„ „
Section <i>Cephalophilon</i>			
<i>Polygonum capitatum</i> HAMILT.	11	22	JARETZKY, 1928c.
Section <i>Amblygonon</i>			
<i>Polygonum orientale</i> L.	11	22	JARETZKY, 1928c.

¹⁾ NODA always found one pair of chromosomes on the margin of the equatorial plate to be larger.

²⁾ Tetraploid cells with 18 paired and 2 separate chromosomes were found.

³⁾ MEURMAN (1925b) reported chromosome complex as $\delta n = 6 + X$ or $6 + 2Y$.

⁴⁾ This species was not classified according to section.

⁵⁾ These section names are as in ENGLER & PRANTL but the order of arrangement of sections differs.

POLYGONACEAE (continued)		n	2n		
POLYGONUM (continued)					
Section T o v a r a					
<i>Polygonum filiforme</i> THUNB. . .			ca. 44	JARETZKY, 1928c.	
" <i>virginianum</i> L. . .	22			" "	
Section P e r s i c a r i a					
<i>Polygonum amphibium</i> L. . .			ca. 66	" "	
" <i>Blumei</i> MEISSN. . .			40	" "	
" <i>danubiale</i> KERNER. . .			22	" "	
" <i>hydropiper</i> L. . . .			20	" "	
" <i>laphathifolium</i> L. . .			22	"	1927b.
" <i>nodosum</i> PERS. (— <i>P. laphathifolium</i> L)	11	22		"	1928c.
" <i>persicaria</i> L. . . .	22	44		"	1927b, 1928c.
" <i>spectabile</i> MART. . .		66 ²⁾		"	1928c.
" <i>tinctorium</i> LOUR. . .		40 ²⁾		"	"
" <i>tomentosum</i> SCHRANK.	11	22		"	"
Section A c o n o g o n o n					
<i>Polygonum alpinum</i> ALL. . . .	10	20		"	"
" <i>divaricatum</i> L. . . .	50	ca. 100		"	"
" <i>Laxmanni</i> LEPECH. . .	10			"	"
" <i>molle</i> DON.	10	20		"	"
" <i>polystachyum</i> WAL- LICH.		22		"	"
" <i>sericeum</i> PALL. . . .	10	20		"	"
Section A v i c u l a r i a					
<i>Polygonum agryrocoleon</i> STEU- DEL		40		"	"
" <i>aviculare</i> L. (forma)		40		"	"
" <i>aviculare</i> var. <i>mon-</i> <i>speliense</i> THIÉB. . .	20	40		"	"
" <i>Bellardi</i> ALL.	10	20		"	"
" <i>maritimum</i> L. . . .		20		"	"
" <i>plebejum</i> R. BR. . . .	20	40		"	"
Section P l e u r o p t e r u s					
<i>Polygonum compactum</i> HOOK. .		ca. 44		"	"
" <i>cuspidatum</i> SIEB. et ZUCC.		88(?)		"	"
" <i>sacchalinense</i> F. SCHM.		ca. 44		"	1927b; 1928c.

¹⁾ The actual counts were 62, 63, 64, and 65; therefore, probable number is 66.

²⁾ In more than 10 plates not more than 40 chromosomes were ever counted.

POLYGONACEAE (continued)	n	2n	
POLYGONUM (continued)			
Section <i>Tiniaria</i>			
<i>Polygonum Auberti</i> HENRY . .		20	JARETZKY, 1928c.
" <i>cilinode</i> MICH.	10		" "
" <i>convolvulus</i> L.	10	20	" "
" <i>dumetorum</i> L.	10		" "
" <i>Savatieri</i> NAKAI . .	10		SUGIURA, 1925b.
<i>Pleuropteropyrum Weyrichii</i>			
var. <i>alpinum</i> (MAX) GROSS			
(= <i>Polygonum Savatieri</i>			
MAK.)	10		JARETZKY, 1928c.
<i>Pleuropteropyrum Weyrichii</i> .	10		SUGIURA, 1928a.
" <i>Weyrichii</i>			
(F. SCHMIDT) GROSS	10	20	JARETZKY, 1928c.
<i>Persicaria glandulosa</i>		22	SUGIURA, 1928a.
" <i>perfoliata</i>		22	" "
" <i>Thunbergii</i>		ca. 34	" "
<i>Amblygonon orientale</i>		22	" "
<i>Fagopyrum cymosum</i> MEISSN. .	8		JARETZKY, 1928c.
" <i>emarginatum</i>		16	QUISENBERRY, 1927.
" <i>emarginatum</i>			
MEISSN.	8	16	JARETZKY, 1928c.
" <i>esculentum</i>		16	" 1927b.
" <i>esculentum</i>			
MOENCH	8		STEVENS, 1912, TAYLOR, 1925c.
" <i>esculentum</i> var. Ja-			
panese	8	16	QUISENBERRY, 1927.
" <i>esculentum</i> var. Sil-			
verhull.	8	16	" 1927.
" <i>gracilipes</i> HEMSL. .		16	JARETZKY, 1928c.
" <i>rotundatum</i> BAB. .		16	" "
" <i>tartaricum</i>		16	" "
" <i>tartaricum</i> var.			
Notch Seeded . .		16	QUISENBERRY, 1927.
<i>Antigonon leptopus</i> Hook. . .		40	JARETZKY, 1928c.
<i>Mühlenbeckia complexa</i> MEISSN.			
" <i>platyclados</i>			
MEISSN.		20	" "
" <i>sagittifolia</i>			
MEISSN.		40	" "
<i>Coccoloba diversifolia</i> JACQ. .		200(?)	" "
<i>Triplaris surinamensis</i> CHAM. .		22	" "

CENTROSPERMAE	n	2n
CHENOPODIACEAE		
<i>Beta maritima</i> (= <i>B. vulgaris</i>)		
var. <i>perennis</i>	9 ¹⁾	WINGE, 1917, 1925.
„ <i>maritima</i> L.	9	KUZMINA, 1927.
„ <i>trigyna</i>	27	BLEIER, 1928b.
„ <i>vulgaris</i> L.	9	WINGE, 1925, 1927b. DUDOK VAN HEEL, 1925; ART- SCHWÄGER, 1927; SUGIURA, 1927; OKSIJUK, 1927; LE- VITSKY, 1927; BLEIER, 1928b.
„ <i>vulgaris</i> L. var. <i>chiloensis</i> Hort.	9	18 ²⁾ NEMEC, 1926; WINGE, 1927b. VILMORIN et SIMONET, 1927b.
„ <i>vulgaris</i> L. var. <i>sacchari-</i> <i>fera</i>	9	18 KUZMINA, 1927.
„ <i>vulgaris</i> × <i>B. trigyna</i> . .	$9 + \frac{18}{2}$	BLEIER, 1928b.
<i>Chenopodium album</i>	9	WINGE, 1917.
„ <i>bonus henricus</i>	18	„ „
„ <i>hybridum</i>	9	„ „
„ <i>murale</i>	9	„ „
„ <i>vulvaria</i>	9	„ „
<i>Spinacea oleracea</i>	6	STOMPS, 1910; WINGE, 1917, 1923.
„ <i>oleracea</i> var. <i>Viktoria</i>		12, 24, 48 DE LITARDIERE, 1923b.
„ <i>oleracea</i> var. Weibull's original <i>Valkyria II</i>		12, 24, 48 ³⁾ LANGLET, 1927b.
<i>Atriplex hastata</i>	ca. 24	ROSENBERG, 1909c.
„ <i>hastatum</i>	9	WINGE, 1917.
„ <i>hortensis</i> L.	9	TJEBBES, 1928.
„ <i>littorale</i>	9	WINGE, 1917.
„ <i>patulum</i>	18	„ „

¹⁾ The cultivated beet-root and sugar-beet were both found by WINGE (1925) to have 9 chromosomes. MATTHIJSSEN according to FRANCK (1911) found $n = 8$ for a cultivated form.

²⁾ NEMEC found some giant cells containing 44—45, 46, 56, and 120 chromosomes. WINGE (1927b) found cells with 36, 72, and ca. 144 chromosomes in cancer tissue on a root (36 was the number found most frequently).

³⁾ LANGLET found cells with 12 chromosomes in the youngest part of the perilem, cells with 24 chromosomes in a somewhat older part of the perilem, and still farther from the growing point cells with 48 chromosomes.

CHENOPODIACEAE (continued)	n	2n	
<i>Bassia hirsuta</i>	9		WINGE, 1917.
<i>Hablitzia tamnoides</i>	9		DAHLGREN, 1916; WINGE, 1917.
NYCTAGINACEAE			
<i>Mirabilis Jalapa</i>	ca. 16 ¹⁾		TISCHLER, 1903.
	27		" 1928b.
" <i>tubiflora</i>	ca. 16 ¹⁾		" 1903.
	27		" 1928b.
" <i>Jalapa</i> × <i>M. tubi-</i>			
<i>flora</i>	ca. 16		" 1903.
CYNOCRAMBACEAE			
<i>Thelygonum Cynocrambe</i> L.		20	SCHNEIDER, 1913.
PHYTOLACACEAE			
<i>Phytolaca decandra</i>	18		KLEINMAN, 1923.
PORTULACACEAE			
<i>Portulaca grandiflora</i> LINDL.	9		TJEBBES, 1928.
CARYOPHYLLACEAE			
<i>Agrostemma Githago</i>	ca. 20		ROCÉN, 1926, 1927.
	24		BLACKBURN, 1928.
<i>Viscaria alpina</i>	12		" "
" <i>oculata</i> LINDL.	12		TJEBBES, 1928.
" <i>coeli-rosa</i> DC	12		" "
" <i>Sartori</i>	12		BLACKBURN, 1928.
" <i>oculata</i> × <i>coeli-rosa</i>	12		TJEBBES, 1928.
<i>Silene acaulis</i>	12		BLACKBURN, 1928, (1926), 1929
" <i>antirrhina</i>	12		" " " "
" <i>armeria</i>	12		" "
" <i>asterias</i>	12		" "
" <i>Behen</i>	12		" " " "
" <i>Bergiana</i>	12		" " " "
" <i>ciliata</i> (Edinburgh Bot.			
Gardens)	12		" "
" <i>ciliata</i> (CHODAT's Alpine			
Garden):	24		" 1927 1928.
" <i>ciliata</i> (Kew Gardens)	96		" " 1928.
" <i>compacta</i>	12		" "
" <i>conica</i>	12		" "
" <i>conoidea</i>	12		" "
" <i>corrugata</i>	12		" "
" <i>cretica</i>	12		" "
" <i>dichotoma</i>	12		" "
" <i>disticha</i>	12		" "
" <i>echinata</i>	12		" "
" <i>Elisabethae</i>		ca. 24	HEITZ, 1926.

¹⁾ These numbers were judged by the chromosome number of the hybrid.

CARYOPHYLLACEAE (continued)		n	2n
<i>Silene</i> (continued)			
<i>Silene fimbriata</i>	12		BLACKBURN, 1928.
" <i>Friwaldskyana</i>	ca. 24		ROCÉN, 1926, 1927.
	12		BLACKBURN, 1928.
" <i>fruticosa</i>	12		" "
" <i>fuscata</i>	12		" "
" <i>gallica</i>	12		" "
" <i>gigantea</i>	12	24	HEITZ, 1926.
" <i>glauca</i>	12		BLACKBURN, 1928.
" <i>inflata</i>	12		" " (1926), 1929
" <i>inflata</i> f. <i>alpina</i>	12		HEITZ, 1926.
" <i>integripetala</i>	12		BLACKBURN, 1928.
" <i>italica</i>	12		" " (1926), 1929
" <i>linicola</i>	12		" "
" <i>maritima</i>	12		" "
" <i>mekinensis</i>	12		" " (1926) 1929,
" <i>mentagensis</i>	12		" "
" <i>muscipula</i>	12		" "
" <i>nicaensis</i>	12		" "
" <i>noctiflora</i>		24	HEITZ, 1926.
" <i>nutans</i>	12 ¹⁾		BLACKBURN, 1928, (1926) 1929.
" <i>obtusifolia</i>	12		" "
" <i>otites</i>	12 ²⁾		" " (1926) 1929.
" <i>pendula</i>	12		" 1924, 1928.
" <i>rupestris</i>	12		" 1928.
" <i>saxifraga</i>	12		" "
" <i>schafta</i>	12		" "
" <i>sericea</i>	12		" "
" <i>Sinowatsoni</i>	12 ³⁾		" "
" <i>squamigera</i>	12		" "
" <i>tatarica</i>	12		" "
" <i>tenuis</i>	12		" "
" <i>vallesia</i>	24		" 1927, 1928.
" <i>virescens</i>	12		" 1928.
" <i>viridella</i>	12		" (1926) 1929.
" <i>viridiflora</i>	12		" 1928.
" <i>volubilitana</i>	12		" "
" <i>Zawadskii</i>		24	HEITZ, 1926.
<i>Eudianthe coeli-rosea</i>	12		BLACKBURN, 1928.
" <i>corsica</i>	12		" "

¹⁾ This species shows 1 pair of ring-shaped bivalents approximately twice the size of the others.

²⁾ This species has an XY pair of chromosomes in the male plant. So $\delta n = 11 + X$ or $11 + Y$ and $\eta n = 11 + X$.

³⁾ This shows a different type of chromosome.

CARYOPHYLLACEAE (continued)		n	2n	
<i>Lychnis</i> (continued)				
<i>Lychnis Arkwrightii</i>	12			BLACKBURN 1928.
" <i>chalcedonica</i>	12			" "
" <i>coronaria</i>	12			" "
" <i>flos cuculi</i>	12	24		" 1924.
" <i>flos cuculi</i>	12			HEITZ, 1926; BLACKBURN, 1928
" <i>flos Jovis</i>	12	24		BLACKBURN, 1928.
" <i>flos Jovis</i>	12			" "
" <i>Haageana</i>	12			" "
" <i>hybrida</i>	12			" "
" <i>Sieboldii</i> VAN HOUTTE. 12 ¹⁾				TAKAGI, 1928a.
<i>Petrocoptis Lagascae</i>	12			BLACKBURN, 1928.
<i>Heliosperma alpestre</i>	12			ROCÉN, 1926, 1927; BLACKBURN, 1928.
" <i>quadrifidum</i>	12			BLACKBURN, 1928.
<i>Melandrium album</i>	12			SCHÜRHOFF, 1919, 1925b; WINGE, 1923 ²⁾ ; HEITZ, 1925a, b, 1926; MEURMAN 1925b ²⁾ ; BELAR, 1925 ³⁾ ; BLACKBURN, 1928 ²⁾ , (1926) 1929:
" <i>album</i> var. <i>glabrum</i> 12				BLACKBURN, (1926) 1929.
" <i>auriculatum</i>	12			" 1928.
" <i>californicum</i>	24			" "
" <i>divaricatum</i> ³⁾	12			" " (1926) 1929.
" <i>Elizabethae</i>	12			" "
" <i>glutinosum</i> ³⁾	12			" " (1926) 1929.
" <i>noctiflorum</i> L.				
" <i>FRIES</i>	12			SCHÜRHOFF, 1925.
" <i>noctiflorum</i>	12			BLACKBURN, 1928.
" <i>pennsylvanicum</i>	24			" "
" <i>rubrum</i> ³⁾	12			STRASBURGER, 1910b; c; SCHÜRHOFF, 1925b; MEURMAN ⁴⁾ , 1925b; HEITZ ⁴⁾ ;

¹⁾ Under a temperature of 38°—39° C. abnormalities in chromosome division occurred. As a result of non-conjunction of 24 univalents, diads might be produced, or following non-conjunction the 24 univalents might be distributed irregularly to the 2 poles and followed by homeotypic division give rise to tetrads with 2 larger and 2 smaller cells. The univalents, too, might split, giving rise to as many as 40 chromosomes to tetrads with varying numbers of cells.

²⁾ According to these authors an XY pair of chromosomes is present in the male plant. So $\sigma n = 11 + X$ or $11 + Y$ and $\phi n = 11 + X$.

³⁾ In these species and this hybrid an unequal pair of heterochromosomes occurs in the male. So $\sigma n = 11 + X$ or $11 + Y$.

⁴⁾ These authors confirm the finding of an XY pair in *Melandrium rubrum*.

CARYOPHYLLACEAE (continued) n

2n

Melandrium (continued)

			1925b, 1926; ÅKERLUND ¹⁾ ; 1927; BLACKBURN ²⁾ , 1928 (1926), 1929.
<i>Melandrium virginicum</i>	24		BLACKBURN, 1928.
" „yunnanense”	12		" "
" „Zawadskii”	12		" "
" „album × rubrum ³⁾ ”	12		" „ (1926) 1929.
<i>Cucubalus baccifer</i>	12		" "
<i>Gypsophila elegans</i>	17		" "
" „perfoliata”	ca. 24		" "
" „repens”	18	35-36	ROCÉN, 1926, 1927. HEITZ, 1926.
<i>Vaccaria segetalis</i>	15		BLACKBURN, 1928.
<i>Dianthus barbatus</i>	15		" "
" „deltoides”	15		" "
<i>Saponaria calabrica</i>	14		" "
" „ocymoides”	14		" "
" „officinalis”	14		HEITZ, 1926, ROCÉN, 1927; BLACKBURN, 1928.
	14-16		ROCÉN, 1926.
" „pulchella”	14		BLACKBURN, 1928.
<i>Stellaria graminea</i>	(13)-14	(26)-28	HEITZ, 1926.
" „holostea”	10		ROCÉN, 1926.
	ca. 10		" 1927.
" „media”		36-42	HEITZ, 1926.
	ca. 20		ROCÉN, 1927.
" „uliginosa”		24-26	HEITZ, 1926.
<i>Malachium aquaticum</i>	14		" "
<i>Cerastium triviale</i>		ca. 110	" "
" „sp.”		ca. 100	" "
<i>Spergula arvensis</i>		18	" "
<i>Corrigiola littoralis</i>	ca. 8(?)		ROCÉN, 1927.

RANALES

NYMPHAEACEAE

<i>Nelumbo lutea</i> WILLD.	ca. 8		FARR, 1922.
" „lutea”		16	LANGLET & SÖDERBERG, 1927.
" „nucifera”		16	" " " "
<i>Cabomba caroliniana</i>	12	24	NITZSCHKE, 1914.
" „caroliniana (?)”		104(?)	LANGLET & SÖDERBERG, 1927.
<i>Brasenia purpurea</i>		80(?)	" " " "
<i>Victoria cruziana</i>	(12) ⁴⁾		" " " "

¹⁾ ÅKERLUND considered there were heterochromosomes as $\phi n = 11 + X$.²⁾ These authors confirm the finding of an XY pair in *Melandrium rubrum*.³⁾ See footnote 3 on page 189.⁴⁾ Judged by the hybrid (*V. regia* × *V. cruziana*) only.

NYMPHAEACEAE (continued) n		n2	
<i>Victoria</i> (continued)			
<i>Victoria „imperialis hybrida”</i>			
(V. regia × V. cruzi-ana).			
		22	LANGLET & SÖDERBERG, 1927.
„ „pseudocruziana”		23	„ „ „ „
„ regia		20	„ „ „ „
<i>Euryale ferox</i>		58	„ „ „ „
<i>Nymphaea alba</i>	32		GUIGNARD, 1897, 1898.
	48		STRASBURGER, 1900.
		ca. 48	LIEHR, 1916.
	56 or 42 ¹⁾		LANGLET & SÖDERBERG, 1927.
„ candida.	ca. 58	ca. 112	„ „ „ „
„ capensis	14 ²⁾		„ „ „ „
„ capensis var. zansibariensis.		28	„ „ „ „
„ gigantea	112(?)	224(?)	„ „ „ „
„ lotus		56	„ „ „ „
„ mexicana		56	„ „ „ „
„ odorata		84	„ „ „ „
„ rubra		56	„ „ „ „
„ stellata		28	„ „ „ „
„ tetragona		112	„ „ „ „
„ tuberosa	(42) ²⁾		„ „ „ „
„ sp. (from Madagascar).		28	„ „ „ „
„ „Hofgärtner GRAEBNER” (N. lotus × N. rubra)		56	„ „ „ „
„ „tetragona helvola” (N. mexicana × N. tetragona)		84	„ „ „ „
<i>Nuphar advena</i>		34	„ „ „ „
„ japonicum.		34 ³⁾	„ „ „ „
„ luteum	16		GUIGNARD, 1897.
	17		LUBIMENKO & MAIGE, 1907.
		34	ROSENBERG, 1909c; LANGLET & SÖDERBERG, 1927.
		ca. 48	LIEHR, 1916.
„ microphylla		34	LANGLET & SÖDERBERG, 1927.
„ pumilum		34	„ „ „ „

¹⁾ No figures of this species were seen by LANGLET & SÖDERBERG (1927) but they have interpreted a Figure of LUBIMENKO & MAIGE (1907) as having ca. 42 chromosomes.

²⁾ Judged by hybrids of each.

³⁾ One pair of chromosomes is outstanding because of a relatively large pair of satellites.

CERATOPHYLLACEAE		n	2n	
<i>Ceratophyllum demersum</i>	ca.	12		LANGLET & SÖDERBERG, 1927.
" <i>submersum</i>		12		STRASBURGER, 1902.
RANUNCULACEAE . . .				
<i>Glaucidium palmatum</i> SIEB. et				
Zucc.			20	MIYAJI, 1927b.
<i>Hydrastis canadensis</i>			26 ¹⁾	LANGLET, 1928.
<i>Paeonia albiflora</i> PALL.			10	MIYAJI, 1927b.
		5		LANGLET, 1927a.
" <i>albiflora</i> var. „ <i>Agida</i> ”.		5		" "
" <i>albiflora</i> var. „ <i>Boule de</i>				
<i>Neige</i> ”		5		" "
" <i>albiflora</i> var. „ <i>Etienne</i>				
<i>Denis</i> ”		5		" "
" <i>albiflora</i> var. „ <i>Kasuga-</i>			10	" "
<i>no</i> ”				
" <i>albiflora</i> var. „ <i>Nobilis-</i>				
<i>sima</i> ”		5		" "
" <i>albiflora</i> var. „ <i>Potsii-</i>		5		" "
<i>plena</i> ”				
" <i>albiflora</i> var. „ <i>Prince</i>				
<i>Antoine d’Ahrenberg</i> ”		5		" "
" <i>albiflora</i> var. „ <i>Rubens</i> ”		5		" "
" <i>anomola</i>			10	" "
" <i>anomola hybrida</i> . . .		5		" "
" <i>anomola nudicarpa</i> . .		5		" "
" <i>Bakeri</i>			20	" "
" <i>corallina Corsica</i> . . .			10	" "
" <i>corallina Russii</i> . . .			10	" "
" <i>corallina triternata</i> . .		5		" "
" <i>coriacea</i>		10		" "
" <i>decora</i>		10		" "
" <i>Delavayi lutea</i>		5		" "
" <i>Mlokasewitschii</i> . . .			10	" "
" <i>Moutan</i>		5		" "
" <i>obovata</i> var. <i>alba</i> . . .			20	" "
" <i>officinalis</i>		8		WEFELSCHIED, 1911.
" <i>officinalis eufemina</i> . .		10		LANGLET, 1927a.
" <i>officinalis humilis</i> . .		10		" "
" <i>officinalis leiocarpa</i> . .		10		" "
" <i>officinalis</i> var. „ <i>muta-</i>				
<i>bilis</i> ”		10		" "
" <i>officinalis</i> var. „ <i>rubr-</i>				
<i>plen.</i> ”		10		" "

¹⁾ One pair of chromosomes was recognized by its quite large satellites.

RANUNCULACEAE (continued)		n	2n	
Paeonia (continued)				
<i>Paeonia officinalis villosa</i> . . .	10			LANGLET, 1927a.
" <i>peregrina</i>	8			WEFELSCHIED, 1911.
" <i>tenuifolia</i>		10		LANGLET, 1927a.
" <i>Veitchii</i>	5			" "
" <i>Wittmaniana</i>		20		" "
" (several species) . . .	12	24		OVERTON, E., 1893a, b.
" <i>albiflora</i> × <i>P. Wittmaniana</i>		15		LANGLET, 1927a.
" <i>anomala</i> × <i>P. tenuifolia</i>		10		" "
" <i>officinalis</i> × <i>P. Wittmaniana</i>		20		" "
<i>Caltha laeta</i> var. <i>alpina</i> . . .		32		LANGLET, 1927a.
" <i>leptocephala</i>		48		" "
" <i>palustris</i>		32		" "
" <i>palustris</i> var. <i>flor. plen.</i>		ca. 58-59		" "
" <i>palustris</i> var. <i>flor. plen. nana</i>		ca. 58-59		" "
" <i>palustris</i> var. <i>flor. plen. praecox</i>		ca. 58-59		" "
" <i>palustris</i> var. <i>semitplena</i>		ca. 58-59		" "
" <i>radicans</i> FORST.		48		HOCQUETTE, 1922.
<i>Trollius caucasicus</i>		16		LANGLET, 1927a.
" <i>chinensis</i>		16		" "
" <i>europaeus</i>	12 ¹⁾			LUNDEGARDH, 1909.
	11-12			LUNDEGARDH, 1914b.
		16		LANGLET, 1927a.
" <i>hybridus</i> HORT. var. <i>Orange Globe</i>		16		" "
<i>Helleborus foetidus</i> L.	16			MOTTIER, 1897.
" <i>foetidus</i>	12			STRASBURGER, 1888; OVERTON, J. B., 1905.
" <i>foetidus</i>		32		LANGLET, 1927a.
" <i>hybridus</i> HORT.		32		" "
" <i>niger</i>		32		" "
<i>Nigella aristata</i>		12		" "
" <i>arvensis</i> L.		12		HOCQUETTE, 1922.
" <i>arvensis</i>	6			LANGLET, 1927a.
" <i>damascena</i>	> 10 ²⁾			GUIGNARD, 1901.
	6			LANGLET, 1927a.

¹⁾ This number was determined from 24 prochromosomes.²⁾ GUIGNARD found > 30 chromosomes in the fertilized egg cell.

RANUNCULACEAE (continued)	n	2n	
<i>Nigella</i> (continued)			
<i>Nigella damascena</i> var. <i>flor.</i>			
<i>plen.</i> „Miss Jekyll” . .		12	LANGLET, 1917a.
„ <i>damascena</i> L. var. <i>genu-</i>			
<i>ina</i> BRIQ.		12	HOCQUETTE, 1922
„ <i>diversifolia</i>			LANGLET, 1927a.
„ <i>garidella</i>		12	„ „
„ <i>hispanica</i>	6		„ „
„ <i>nigellastrum</i> WILLK. .			
(<i>Garidella nigellas-</i>			
<i>trum</i>)		12	HOCQUETTE, 1922.
„ <i>orientalis</i>	6		LANGLET, 1927a.
„ <i>sativa</i> L.		12	HOCQUETTE, 1922.
„ <i>sativa</i>	6		LANGLET, 1927a.
„ <i>viridis</i>		12	FRANCK, 1911.
<i>Leptopyrum fumarioides</i> . . .		14	LANGLET, 1927a.
<i>Actaea spicata</i>		16	„ „
<i>Cimicifuga cimicifuga</i>		16	„ „
„ <i>simplex</i> (?)		14	„ „
<i>Aquilegia atropurpurea</i>		14	„ „
„ <i>chrysantha</i>	7		SKALINSKA, 1928.
„ <i>haylodgensis</i> HORT. .		14	LANGLET, 1927a.
„ <i>vulgaris</i>	7		WINGE, 1925.
„ <i>vulgaris</i> var. <i>parviflo-</i>			
<i>ra</i>		14	LANGLET, 1927a.
„ <i>vulgaris</i> × <i>A. chry-</i>			
<i>santha</i>	7		SKALINSKA, 1928.
<i>Delphinium Ajacis</i>	12		OVERTON, E., 1893a, b; Os-
			TERWALDER, 1898; VON BOE-
			NICKE, 1911.
	3	16	TJEBBES, 1927.
		16	LANGLET, 1927a.
<i>Delphinium belladonna</i> HORT. .		48	„ „
„ <i>cardiopetalum</i> L. . .	3		TJEBBES, 1928.
„ <i>chinense</i>		16	LANGLET, 1927a.
„ <i>consolida</i> L. . . .		16	HOCQUETTE, 1922; LANGLET,
			1927a.
„ <i>consolida</i>	3		TJEBBES, 1927.
„ <i>fissum</i> WALDST et			
KIT.		32	HOCQUETTE, 1922.
„ <i>hybridum</i> HORT. .		32	LANGLET, 1927a.
„ <i>nudicaule</i>	8		TJEBBES, 1927.
„ <i>orientale</i> var. (?) . ca. 8			BECKMAN, 1928.
„ <i>speciosum</i>		16	LANGLET, 1927a.
„ <i>staphysagria</i> L. . .		16	HOCQUETTE, 1922.

RANUNCULACEAE (continued)		n	2n	
<i>Delphinium</i> (continued)				
<i>Delphinium staphysagria</i> . . .			32	LANGLET, 1927a.
" <i>truncatum</i> . . .			32	" "
<i>Aconitum Californicum</i> . . .			32	LANGLET, 1927a.
" <i>Delavayi</i>			32	" "
" <i>exelsum</i>			16	" "
" <i>Kusnetzoffii</i>			32	" "
" <i>napellus</i>	12	ca. 24		OVERTON, E., 1893a, b, 1894.
	12			OSTERWALDER, 1898.
			24	LANGLET, 1927a.
" <i>paniculatum</i>			32	" "
" <i>septentrionale</i>			16	" "
" Spark's var.			24	" "
" <i>variegatum</i>			24	" "
" <i>vulparia</i>			16	" "
" <i>Wilsonii</i>		ca. 64		" "
" <i>sp.</i> (from Kamtschatka)			16	" "
<i>Anemone blanda</i>			16	" "
" <i>hepatica</i> var. <i>Alb.-ros.</i>			14	" "
" <i>hepatica</i> var. <i>candida</i> .			14	" "
" <i>hepatica</i> var. <i>multiloba</i>			28	" "
" <i>hepatica</i> var. <i>rubr. plen.</i>			14	" "
" <i>hupehensis</i>			16	" "
" <i>japonica</i> S. et Z.	8			TAKAMINE, 1916.
<i>Anemone montana</i>			16	LANGLET, 1927a.
" <i>multifida</i>			32	" "
" <i>narcissiflora</i>	ca. 7-8			" "
" <i>nemorosa</i>	12			WINGE, 1917.
" <i>pratensis</i>			16	LANGLET, 1927a.
" <i>rupicola</i>			32	" "
" <i>silvestris</i>			16	" "
" <i>silvestris</i> var. <i>flor. plen.</i>			16	" "
<i>Clematis Jackmanni</i> HORT.			16	" "
" <i>ochotensis</i>			16	" "
" <i>paniculata</i>			16	" "
" <i>recta</i>			16	GUIGNARD, 1885; LANGLET, 1927a.
" <i>stans</i>			16	" "
" <i>Hendersonii</i> HORT.				" "
= <i>C. integrifolia</i> × <i>C. viticella</i>)			16	" "

RANUNCULACEAE (Continued)		n	2n	
<i>Myosurus minimus</i> L.	8			MANN, 1932.
			16	HOCQUETTE, 1922.
<i>Trautvetteria palmata</i>			28	LANGLET, 1927a.
<i>Ranunculus abortivus</i>			16	" "
" <i>aconitifolius</i>			16	" "
" <i>acris</i> L. (normal race)			12 ¹⁾	SOROKIN, 1924, 1927b.
" <i>acris</i> L. (Gynodimorphic races)			13, 14, 15, 18 ²⁾	SOROKIN, 1924.
" <i>acris</i> L. (Gynodimorphic race)			18 ³⁾	" 1927b.
" <i>acris</i> L. (n = 18) × (n = 12)			12, 13, 15-17	" "
" <i>acris</i> L.	7 ⁴⁾			" 1927a, 1927c.
			14 ⁵⁾	" 1927d; LANGLET, 1927a.
	7 ⁶⁾	14	29-32 ⁷⁾	SENJANINOVA, 1926.
" <i>acris</i> var. <i>femina</i>	7	14		LANGLET, 1927a.
" <i>acris</i> var. <i>flor. plen</i>		14		" "
" <i>acris</i> L. var.				
<i>Stevenii</i> REGEL		14		MİYAJI, 1927a; LANGLET, 1927a.
" <i>acris</i> L. subsp' <i>bo-reauanus</i> (JORD) Rouy et Fouc.			16	HOCQUETTE, 1922.
<i>Ranunculus alpestris</i>			16	LANGLET, 1927a.
" <i>amplexicaulis</i>			16	" "
" <i>anemonaeifolius</i>			24	" "

¹⁾ Plants of the normal race of *R. acris* collected in Europe were found to have $2n = 12$ chromosomes by SOROKIN (1924) and this was confirmed in 1927 SOROKIN (1927b).

²⁾ Gymnodimorphic races were found to have 13, 14, 15 and 18 chromosomes (SOROKIN 1924).

³⁾ The gynodimorphic race with $2n = 18$ was used in crosses with the normal race ($2n = 12$) and produced progeny with 12, 13, 15, 16 and 17 chromosomes having different formulae (SOROKIN, 1927b).

⁴⁾ SOROKIN (1927a) reported ($n = 7$) for a form from the New York Bot. Gard. The chromosomes were classified according to size and form, giving the formula $2(A + B + c + c' + d + e + f)$.

⁵⁾ SOROKIN (1927d) reported that the most common formula of the common form from a number of localities was $2(A + B + C + c + d'' + e + f)$.

⁶⁾ One chromosome was called a heterochromosome, as it may have either a large or a small satellite.

⁷⁾ This is considered to be a tetraploid race ($2n = 28$), the extra chromosomes probably being the result of early splitting of several of the chromosomes.

RANUNCULACEAE (continued)	n	2n	
<i>Ranunculus</i> (continued)			
<i>Ranunculus arvensis</i>	32		LANGLET, 1927a.
" <i>asiaticus</i> „ <i>superbus</i>			
HORT.	16	"	"
" <i>bulbosus</i>	16	"	"
" <i>bulbosus</i> var. <i>femina</i>	16	"	"
" <i>bulbosus</i> var. <i>flor. plen.</i>	16	"	"
" <i>bulbosus</i> L. subsp. <i>eu-bulbosus</i> BRIQ. var. <i>bulbifer</i> (JORD.) BRIQ. . .	16		HOCQUETTE, 1922.
" <i>bulbosus</i> subsp. <i>eu-bulbosus</i> var. <i>bulbifer</i> fa. <i>foliis albo maculatis</i>	16	"	"
" <i>carpathicus</i>	14		LANGLET, 1927a.
" <i>caucasicus</i>	16	"	"
" <i>cymbalaria</i>	16	"	"
" <i>ficaria</i> (<i>Ficaria verna</i>)	24		WINKLER, 1926.
" <i>ficaria</i> (<i>Ficaria ranunculoides</i> ROTH) ca. 6.			SOUÈGES, 1913.
" <i>ficaria</i>	32		LANGLET, 1927a.
" <i>ficaria</i> L. subsp. <i>euficaria</i> BRIQ. .	32		HOCQUETTE, 1922.
" <i>ficaria</i> var. <i>flor. plen.</i>	16		LANGLET, 1927a.
" <i>ficaria</i> var. <i>ochroleuca</i>	32	"	"
" <i>flammula</i>	32	"	"
" <i>graminifolius</i>	16	"	"
" <i>illyricus</i>	32	"	"
" <i>lanuginosus</i> var. <i>flor. plen.</i>	14	"	"
" <i>muricatus</i>	48	"	"
" <i>nyssanus</i>	16	"	"
" <i>ophioglossifolius</i>	16	"	"
" <i>parviflorus</i>	28	"	"
" <i>platanifolius</i>	14	"	"
" <i>repens</i>	12		MARCHAL, 1920.
	32		LANGLET, 1927a.

RANUNCULACEAE (continued)		n	2n	
<i>Ranunculus</i> (continued)				
<i>Ranunculus repens</i> var. <i>flor.</i>				
	<i>plen.</i>		32	LANGLET, 1927a.
	<i>repens</i> var. <i>typicus</i>			
	BECK.		32	HOCQUETTE, 1922.
	<i>reptans</i>		8	LIEHR 1916.
			32	LANGLET, 1927a.
	<i>serbicus</i>		24	" "
	<i>Sommieri</i>		24	" "
	<i>trachycarpus</i>		32	" "
	<i>trilobus</i>		43	" "
	<i>velutinus</i>		14	" "
	<i>Batrachium hederaceum</i>		16	" "
	<i>marinum</i>		32	" "
	<i>paucistamineum</i>		16	" "
THALICTRUM ¹⁾				
Section <i>Campytonota</i>				
1. <i>Rotundifolia</i>				
	<i>Thalictrum javanicum</i> BLUME .		42	KUHN, 1923a.
2. <i>Petalioidea</i>				
	<i>Thalictrum anemonoides</i> MICHX		42 ²⁾	KUHN, 1923a.
	<i>„ aquilegifolium</i>		14 & 23 ³⁾	LANGLET, 1927a, b.
	<i>„ aquilegifolium</i> L. ⁴⁾ .	7	14 & 23 ⁵⁾	KUHN, 1923a.
	<i>„ aquilegifolium</i> var.			
	<i>„ atropurpureum</i>		14	" "
	<i>„ aquilegifolium „hy-</i>			
	<i>bridum</i> ” HORT. . . .		28	LANGLET, 1927a.
	<i>„ orientale</i> BOISS. . . .		42	KUHN, 1923a.
	<i>„ petaloideum</i> L. . . .		14	" "
	<i>„ tuberosum</i> L.		23	" "
Section <i>Campyogastra</i>				
3. <i>Sparsiflora</i>				
	<i>Thalictrum Przewalskii</i>		70	LANGLET, 1927a.
	<i>„ Przewalskii</i> MAXIM.		14	KUHN, 1923a.
	<i>„ sparsiflorum</i> TURCZ.		42	" "
	<i>„ squarrosum</i> STE-			
	PHAN ⁶⁾		42	" "
4. <i>Makrocarpa</i>				
	<i>Thalictrum calabricum</i> SPRENG ⁴⁾		42 ⁷⁾	" "

¹⁾ Classification into sections is according to ENGLER & PRANTL.

²⁾ Frequently a smaller number (35—37) was found.

³⁾ „Disomatic” nuclei with 26 chromosomes (thought to be 28 with 2 drawn away by the knife in sectioning) were also found in the root-tips.

⁴⁾ Plants from two different sources were studied.

⁵⁾ Disomatic regions were recognizable in the root-tips.

⁶⁾ Plants from three different sources were studied.

⁷⁾ Frequently 43 or 44 chromosomes were counted.

RANUNCULACEAE (continued)	n	2n	
THALICTRUM (Continued)			
Section <i>Campyogastrea</i> (continued)			
5. <i>Platycarpa</i>			
<i>Thalictrum cheidonii</i> DC. . .		42	KUHN, 1928a.
" <i>cultiatum</i> WALL. . .		42	" "
6. <i>Podocarpa</i>			
<i>Thalictrum Fendleri</i>		28	LANGLET, 1927a.
" <i>Fendleri</i> ENGELM. ¹⁾	14	28	KUHN, 1928a.
7. <i>Dioica</i>			
<i>Thalictrum corynellum</i> DC. ¹⁾ .		28	KUHN, 1928a.
" <i>dioicum</i> L.		42	" "
" <i>purpurascens</i>		24	OVERTON, J. B., 1904, 1905.
	12		STRASBURGER, 1904b; OVERTON, J. B., 1909.
		42	LANGLET, 1927a.
" <i>purpurascens</i> L. . .	12	24	KUHN, 1928a.
8. <i>Flexuosa</i>			
<i>Thalictrum bulgaricum</i> VELEN.		28	KUHN, 1928a.
" <i>elatum</i> JACQ.		28	" "
" <i>flavum</i>		84	LANGLET, 1927a.
" <i>flavum</i> L. ¹⁾		84	KUHN, 1928a.
" <i>flexuosum</i> BERNH. ²⁾	21	42	" "
" <i>glaucum</i>		28	LANGLET, 1927a.
" <i>glaucum</i> DESF.		28	KUHN, 1928a.
" <i>foetidum</i>		14	LANGLET, 1927a.
" <i>foetidum</i> L. ¹⁾		14	KUHN, 1928a.
" <i>galloides</i> NESTL. . . .		28	" "
" <i>lucidum</i> L. ³⁾	14	28	" "
" <i>montanum</i> WALLR. . .	7	14	" "
" <i>simplex</i>		56	LANGLET, 1927a.
" <i>rariflorum</i>		56, 112	" "
" <i>simplex (rariflorum)</i>		56, 112	" "b.
" <i>simplex</i> L. ⁴⁾	28	56	KUHN, 1928a.
" <i>simplex</i> L. ⁵⁾	35	70	" "
" <i>Kemense</i>		70	LANGLET, 1927a.

¹⁾ Plants from two different sources were studied.

²⁾ Plants from six different sources and under the names *saxatile*, *minus*, *purpurascens*, *minus* × *medium* and *flexuosum*, were all considered to be *Th. flexuosum* BERNH. and were found to have the same chromosome number.

³⁾ Plants from three different sources were studied.

⁴⁾ Plants from four different sources were studied. Those under the names *var. amurensis* from Leningrad were found to have $n = 28$.

⁵⁾ Others under the names *Kemense*, *var. dubium* and *simplex* were found to have $n = 35$.

RANUNCULACEAE (continued)		n	2n	
THALICTRUM (continued)				
Section (?) ¹⁾				
<i>Thalictrum alpinum</i>			14	LANGLET, 1927a.
„ <i>angustifolium</i>			28	„ „
„ <i>banaticum</i>				
(ROCHET?)			42	KUHN, 1928a.
„ <i>calabricum</i>			42	LANGLET, 1927a.
„ <i>confine</i> FERNALD			42	KUHN, 1928a.
„ <i>cornuti</i> ?)			42	LANGLET, 1927a.
„ <i>Delavayi</i>			42	„ „
„ <i>Delavayi</i> FRANCH.			42	KUHN, 1928a.
„ <i>diptercarpum</i>			28	LANGLET, 1927a.
„ <i>diptercarpum</i>				
FRANCH.			28	KUHN, 1928a.
„ <i>exaltatum</i>		28, 35	„ „	
„ <i>lucidum</i>			28	LANGLET, 1927a.
„ <i>lucidum</i> var. <i>laserpitiifolium</i>			28	„ „
„ <i>maximum</i> (?)			42	KUHN, 1928a.
„ (<i>Mediterraneum</i> ?)			28	LANGLET, 1927a.
„ <i>medium</i> JACQ.			28	„ „
„ <i>minus</i>			12	OVERTON, J. B., 1909.
			42	LANGLET, 1927a.
„ <i>minus Kochii</i>			42	„ „
„ <i>minus odoratum</i>			42	„ „
„ <i>minus</i> L. subsp. <i>dunense</i> (DUMORT)				
ROUY et FOUC.			48	HOCQUETTE, 1922.
„ (<i>pauciflorum</i> ?)			42	LANGLET, 1927a.
„ (<i>rubellum</i> ?)			42	„ „
„ <i>rufinerve</i> LEJ. et				
COURT			28	KUHN, 1928a.
„ <i>rugosum</i> AIT.			28	„ „
„ <i>sp.</i>			35	LANGLET, 1927a.
„ <i>flexuosum</i> BERNH.				
× <i>Th. simplex</i> L.				
(?)			47	KUHN, 1928a.
<i>Adonis aestivalis</i>			32	LANGLET, 1927a.
„ <i>apennina</i>			16	„ „
„ <i>autumnalis</i>			32	„ „
„ <i>dahurica</i>	12			ISHIKAWA, 1916; TAKAMINE, 1916.
			24	LANGLET, 1927a.

¹⁾ The following species were not classified under sections.

RANUNCULACEAE (continued)	n	2n	
<i>Adonis</i> (continued)			
<i>Adonis flammea</i>	16		LANGLET, 1927a.
" <i>pyrenaica</i>	8		" "
" <i>vernalis</i>	8		" "
" <i>volgensis</i> × <i>A. vernalis</i> .		16	" "
LARDIZABALACEAE			
<i>Akebia lobata</i>	16		(KUWADA, 1916), given by Ishi- KAWA, 1916.
" <i>quinata</i> D.C.	16	32	VELSER, 1913.
" <i>quinata</i>	16		KUWADA, given by ISHIKAWA, 1916.
<i>Lardizabala biternata</i>		28	LANGLET, 1928.
BERBERIDACEAE			
<i>Podophyllum Emodi</i>		12 ¹⁾	DE LITARDIÈRE, 1921; LANG- LET, 1928.
" <i>Leichtlinii</i>		12	LANGLET, 1928.
" <i>pellatum</i> L.	8 ²⁾	16	MOTTIER, 1897, 1905 ³⁾ .
	8		OVERTON, J. B., 1905, 1922.
	6		LUBLINER, 1925.
		12	DE LITARDIÈRE, 1921.
	6	12	KAUFMANN, 1926.
		14	RICHARDS, 1909.
<i>Jeffersonia binata</i> (<i>diphylla</i>) .		12	LANGLET, 1928.
" <i>dubia</i> ⁴⁾		12	" "
<i>Diphylleia cymosa</i>		12	" "
<i>Nandina domestica</i>		20	" "
<i>Epimedium macranthum</i>		12	" "
" <i>Musschiniianum</i>		12	" "
" <i>pinnatum</i>		12	DE LITARDIÈRE, 1921; LANG- LET, 1928.
" <i>rubrum</i>		12	LANGLET, 1928.
<i>Vancouveria</i> (<i>Epimedium</i>)			
<i>hexandra</i>		12	" "
<i>Caulophyllum</i> (<i>Leontice</i>) <i>thalic-</i> <i>troides</i>		16	" "
<i>Berberis</i> (<i>Mahonia</i>) <i>aquifolium</i> .	14		TISCHLER, 1928b.
" <i>buxifolia</i>	28		" "

¹⁾ One root was found by LANGLET to have disomatic cells with $2n = 24$.

²⁾ In 1897 MOTTIER found 6 chromosomes in several cases but it was thought that in sectioning the knife might have displaced 2 chromosomes. In 1905 OVERTON accepted $n = 8$ as correct.

³⁾ In previous list, GAISER (1926), this reference was erroneously given as MOTTIER (1907).

⁴⁾ This species is marked by the presence of a pair of satellites.

BERBERIDACEAE (continued)		n	2n	
<i>Berberis</i> (continued)				
<i>Berberis Darwinii</i>		14		HIMMELBAUR, 1912; TISCHLER 1927a, 1928b.
„ <i>empetrifolia</i>		14		HIMMELBAUR, 1912; TISCHLER, 1927a, 1928b.
„ (<i>empetrifolia</i> × <i>Dar-</i> <i>winii</i>)		14		HIMMELBAUR, 1912.
„ <i>integerrima</i>		14		TISCHLER, 1928b.
„ (<i>Mahonia japonica</i>		14		„ „
„ (<i>Mahonia repens</i>		14		„ „
„ <i>stenophylla</i> HORT.				
(= <i>B. empetrifolia</i> × <i>B. Darwinii</i>).		14		„ 1927a.
„ <i>Thunbergii</i>		14		„ 1928b.
„ <i>Veitchii</i>		14		„ „
„ sp. (verna)			23	LANGLET, 1928.
„ <i>vulgaris</i>		14		TISCHLER, 1928b.
MENISPERMACEAE				
<i>Menispermum canadense</i>			52-54	LANGLET, 1928.
„ <i>dahuricum</i>			52-54	„ „
MAGNOLIACEAE				
<i>Magnolia denudata</i> (= <i>obovata</i>) ca. 48				ANDREWS, 1901.
„ <i>obovata</i>		> 50		WEFELSCHIED, 1911.
„ <i>foetida</i> (= <i>grandiflo-</i> <i>ra</i>).		57(?)		YAMAKAWA, 1916 (given by Is- HIKAWA, 1916).
„ <i>Kobus</i>		19		YAMAKAWA, 1916 (given by Is- HIKAWA, 1916).
„ <i>parviflora</i>		19		YAMAKAWA, 1916 (given by Is- HIKAWA, 1916).
„ <i>precia</i> (= <i>Yulan</i>).		ca. 40		GUIGNARD, 1897.
„ <i>Youlan</i>		> 50		WEFELSCHIED, 1911.
„ <i>tripetala</i>		ca. 45		FARR, 1918.
„ <i>virginiana</i> L.		19		MANEVAL, 1914.
„ <i>Lennecana</i> HORT. (= <i>precia</i> × <i>denudata</i>).		> 50		WEFELSCHIED, 1911.
„ <i>Soulangiana</i> HORT. (= <i>precia</i> × <i>denu-</i> <i>data</i>)		ca. 40		GUIGNARD, 1897.
<i>Liriodendron tulipifera</i> L.		19		MANEVAL, 1914.
<i>Drimys Winteri</i>		ca. 36		STRASBURGER, 1905a.
LAURACEAE				
<i>Cinnamomum Sieboldi</i>		12		TÄCKHOLM & SÖDERBERG, 1917.

RHOEADALES	n	2n	
PAPAVERACEAE			
<i>Chelidonium laciniatum</i>	8		VON BOENICKE, 1911.
„ <i>Maius</i> L.	6		MARCHAL, 1920.
„ <i>Maius</i>	8		VON BOENICKE, 1911.
„ <i>Maius</i> var. <i>lacini-</i>	6		WINGE, 1917; MARCHAL, 1920.
„ <i>tum</i>	6		WINGE, 1916.
<i>Papaver nudicaule</i>	7		LJUNDAHL, 1922, 1924.
„ <i>nudicaule</i> L.	14		YASSI, 1927.
„ <i>Rhoeas</i>	7		LJUNDAHL, 1922, 1924.
„ <i>Rhoeas</i> L.	7		TAHARA, 1915e; VILCINO &
			ABELE, 1927.
„ <i>somniferum</i>	11		LJUNDAHL, 1922.
„ <i>somniferum</i> L.	11		YASUI, 1921.
„ <i>somniferum</i> L. var.			
„ <i>glabrum</i> Bois.	22		TAHARA, 1915e; YASUI, 1927.
„ <i>somniferum</i> L. var.			
„ <i>glabrum</i> Bois. × <i>P.</i>			
„ <i>nudicaule</i> L. (F ₁)	6—8+		
	$\frac{12_1-10_1}{2} \frac{10_1}{2}$	18	YASUI, 1927.
„ <i>somniferum</i> L. var.			
„ <i>glabrum</i> Bois. × <i>P.</i>			
„ <i>nudicaule</i> L. (F ₂)	11+		
	$\frac{5_1-6_1-7_1}{2} \frac{6_1}{2} \frac{7_1}{2}$		YASUI, 1927.
„ <i>somniferum</i> L. var.			
„ <i>glabrum</i> Bois. × <i>P.</i>			
„ <i>nudicaule</i> L.	11 ¹⁾ ,		
	$\frac{11+4_1}{2}$		YASUI, 1927.
<i>Corydalis cava</i>	8		TISCHLER, 1923b.
„ <i>pumila</i>	ca. 16 ²⁾		NĚMEC, 1910a.
CAPPARIDACEAE			
<i>Cleome gigantea</i>	ca. 70		UFER, 1927.
„ <i>paradoxa</i>	16		TISCHLER, 1921—22.
„ <i>spinosa</i>	38		TAYLOR, 1925c.
	10		UFER, 1927.
„ <i>spinosa gigas</i>	ca. 38		UFER, 1927.
<i>Capparis acutifolia</i> SWEET.	ca. 85		KUHN, 1923b.
„ <i>cyanophallophora</i> L.	18		„ „
„ <i>saligna</i> VAHL.	30		KUHN, 1923b.

¹⁾ Out of 122 individuals 82 had 11 bivalents, while of the remainder none had more than 4 univalents.

²⁾ The number varied from 12 to 20.

CAPPARIDACEAE (continued)	n	2n	
<i>Capparis</i> (continued)			
<i>Capparis spinosa</i>	12		SCHILLER, 1923.
" <i>spinosa</i> L. var. <i>rupes-</i> <i>tris</i> SIBTH. et SM.		33	KUHN, 1928b.
CRUCIFERAE			
<i>Iberis amara</i> L.	8		JARETZKY, 1928b.
" <i>pinnata</i>		16	LAIBACH, 1907.
<i>Cochlearia alpina</i>		28	CRANE & GAIRDNER, 1923.
" <i>anglica</i>		49-50	" " " "
" <i>danica</i>		42	" " " "
" <i>micacea</i>		34-36	" " " "
" <i>officinalis</i>		28	" " " "
" <i>anglica</i> × <i>C. offici-</i> <i>nalis</i>		39-40	" " " "
" <i>danica</i> × <i>C. offici-</i> <i>nalis</i>		35-36	" " " "
" <i>officinalis</i> × <i>C. an-</i> <i>glica</i>		39-40	" " " "
" <i>officinalis</i> × <i>C. da-</i> <i>nica</i>		35	" " " "
<i>Alliaria officinalis</i>	ca. 18-20		WINGE, 1917.
<i>Sisymbrium strictissimum</i>	8		LAIBACH, 1907.
<i>Sinapis alba</i> L.		18	KARPECHENKO, 1924a ¹⁾ .
" <i>arvensis</i> L.		24	" 1924a ¹⁾ .
" <i>dissecta</i> LAG.		24	" 1924a ¹⁾ .
<i>Brassica alboglabra</i> BAILEY		18	" 1928.
" <i>campestris</i> L.	10	16-20	TAKAMINE, 1916.
	10		MORINAGA, 1928.
		20	KARPECHENKO, 1928.
" <i>campestris</i> L. f. „ <i>Abu-</i> <i>rana Tohkowase</i> ”	10		SHIMOTOMAI, 1925.
" <i>campestris</i> L. var. <i>den-</i> <i>tata</i> MATSUM. et NA-			
KAI „ <i>Santona</i> ”	10		SHIMOTOMAI, 1925.
" <i>cernua</i>	18		MORINAGA, 1928.
" <i>cernua</i> HENSL. „ <i>Ka-</i> <i>rashina</i> ”	18		SHIMOTOMAI, 1925.
" <i>chinensis</i> L.		20	KARPECHENKO, 1924a ¹⁾ .
" <i>chinensis</i> L. „ <i>Shakus-</i> <i>hina</i> ”	10		SHIMOTOMAI, 1925.
" <i>chinensis</i>	10		MORINAGA, 1928.
	10	20	TERASAWA & SHIMOTOMAI, 1928

¹⁾ In previous list, GAISER (1926) this reference was incorrectly given as KARPECHENKO (1922-3). This is true throughout the Cruciferae wherever KARPECHENKO (1922-3) appeared.

CRUCIFERAE (continued)	n	2n
<i>Brassica</i> (continued)		
<i>Brassica japonica</i> SIEB. „Mizuna”	10	SHIMOTOMAI, 1925.
„ <i>japonica</i>	10	MORINAGA, 1928.
„ <i>juncea</i> Coss. „Okarashi”	18	SHIMOTOMAI, 1925.
„ <i>juncea</i>	18	MORINAGA, 1928; TERASAWA & SHIMOTOMAI, 1928.
„ <i>juncea</i> (?) (Southern curled)		36 KARPECHENKO, 1924a.
„ <i>juncea</i> CZERN. var. <i>seminibus fuscis</i> BATAL		36 KARPECHENKO, 1924a.
„ <i>montana</i> P.		18 ¹⁾ , 19-20 NETROUFAL, 1927.
„ <i>montana</i> (cultivated races)		18 ²⁾ , 19-21 „ „
„ <i>napus</i>	10	GALLÁSTEGUI, 1926.
„ <i>napus</i> L.	16	LAIBACH, 1907.
	18	SHIMOTOMAI, 1925.
		36 KARPECHENKO, 1928.
„ <i>napus</i> L. var. <i>esculenta</i> DC.		36 „ 1924a.
„ <i>napus</i> L. var. <i>oleifera hyemalis</i> „DOLL” . .		36 „ 1924a.
„ <i>napella</i> CHAIX	19	MORINAGA, 1928.
✓ „ <i>oleracea</i> L.	9	WINGE, 1925.
„ <i>oleracea</i> L. var. <i>acephala</i> DC. „Baumkohl, blauer”		18 KARPECHENKO, 1924a.
„ <i>oleracea</i> L. var. <i>acephala</i> DC. „Habotan”	9	SHIMOTOMAI, 1925.
„ <i>oleracea</i> L. var. <i>acephala</i> DC. „Mosbacher”		18 KARPECHENKO, 1924a.
„ <i>oleracea</i> L. var. <i>acephala</i> DC. „Tronchuda”		18 „ „
„ <i>oleracea</i> var. <i>acephala</i>	9	GALLÁSTEGUI, 1926.
✓ „ <i>oleracea</i> L. var. <i>botrytis</i> L. sub. var. <i>cauliflora</i> GARS.		18 KARPECHENKO, 1924a.

¹⁾ 85% of the cells examined showed 18 chromosomes. Of the remainder only one metaphase plate had 20—21 chromosomes.

²⁾ Counts of 18 and > 18 (i.e. 19—20, 21) were in proportion of 95% to 4%.

CRUCIFERAE (continued)	n	2n
<i>Brassica</i> (continued)		
✓ <i>Brassica oleracea</i> L. var. <i>capitata</i> L.		18 KARPECHENKO, 1924b.
„ <i>oleracea</i> L. var. <i>capitata</i> I. f. <i>alba</i> (LAM.) DC.		18-21 ¹⁾ NETROUFAL, 1927.
„ <i>oleracea</i> L. var. <i>capitata</i> „Tamana” . . .	9	SHIMOTOMAI, 1925.
„ <i>oleracea</i> var. <i>capitata</i> .	9	GALLÁSTEGUI, 1926.
✓ „ <i>oleracea</i> L. var. <i>gemmifera</i> DC.		18 KARPECHENKO, 1924a.
„ <i>oleracea</i> L. var. <i>gemmifera</i> ZENK. „Komo-chitamana” . . .	9	SHIMOTOMAI, 1925.
„ <i>oleracea</i> L. var. <i>gongyloides</i> L.		18 KARPECHENKO, 1924a.
„ <i>oleracea</i> L. var. <i>Sabauda</i> L.	9	18 „ 1924a. 18 „ 1924b. 18-21 ¹⁾ NETROUFAL, 1927.
„ <i>oleracea</i> L. prol. <i>napus</i> L. var. <i>hongnoensis</i> LEVEILLE 1912. . .		18 KARPECHENKO, 1924a'
„ <i>oleracea</i> (nabicol) . .		18 GALLÁSTEGUI, 1926.
„ <i>pekinensis</i>	10	MORINAGA, 1928.
„ <i>pekinensis</i> RUPR. (= <i>B. Petai</i> BAILEY f. CHOSHENHAKUSAI) . .	10	SHIMOTOMAI, 1925.
„ <i>campestris</i> × <i>B. juncea</i> F ₁	$10 + \frac{8_1}{2}$ ²⁾	TERASAWA & SHIMOTOMAI, 1928
„ <i>cernua</i> × <i>B. chinensis</i>	$10 + \frac{8_1}{2}$	MORINAGA, 1928.
„ <i>cernua</i> × <i>B. japonica</i>	$10 + \frac{8_1}{2}$	„ „
„ <i>cernua</i> × <i>B. Rapa</i>	$10 + \frac{8_1}{2}$	„ „
„ <i>chinensis</i> × <i>B. Napella</i>	$10 + \frac{9_1}{2}$	„ „
„ <i>chinensis</i> × <i>B. pekinensis</i>	10	„ „

¹⁾ A single plate was seen in each case showing ca. 38 chromosomes.

²⁾ In the homoecotypic division, after univalents have divided, 16—22 chromosomes appeared on the plates.

CRUCIFERAE (continued)	n	2n	
<i>Brassica</i> (continued)			
<i>Brassica japonica</i> × <i>B. pekinensis</i>	10		MORINAGA 1928.
„ <i>japonica</i> × <i>B. Rapa</i>	10		„ „
„ <i>junceae</i> × <i>B. pekinensis</i>	$10 + \frac{8_1}{2}$		„ „
„ <i>Napella</i> × <i>B. chinensis</i>	$10 + \frac{9_1}{2}$		„ „
„ <i>Napella</i> × <i>B. japonica</i>	$10 + \frac{9_1}{2}$		„ „
„ <i>Napella</i> × <i>B. pekinensis</i>	$10 + \frac{9_1}{2}$		„ „
„ <i>Napella</i> × <i>B. Rapa</i>	$10 + \frac{9_1}{2}$		„ „
„ <i>pekinensis</i> × <i>B. japonica</i>	10		MORINAGA, 1928; TERASAWA & SHIMOTOMAI, 1928.
„ <i>pekinensis</i> × <i>B. Napella</i>	$10 + \frac{9_1}{2}$		MORINAGA, 1928.
„ <i>pekinensis</i> × <i>B. Rapa</i>	10		„ „
„ <i>Rapa</i> × <i>B. chinensis</i>	10		„ „
„ <i>Rapa</i> × <i>B. junceae</i>	$10 + \frac{8_1}{2}$		„ „
„ <i>Rapa</i> × <i>B. Napella</i>	$10 + \frac{9_1}{2}$		„ „
„ <i>Rapa</i> × <i>B. pekinensis</i>	10		„ „
„ <i>chinensis</i> × <i>Raphanus sativus</i> F ₁	$28_1^1)$		TERASAWA & SHIMOTOMAI, 1928
„ <i>chinensis</i> × <i>Raphanus sativus</i> F ₂		17-18, 20, 22-25, 33-35	TERASAWA & SHIMOTOMAI, 1928
„ <i>chinensis</i> × <i>Raphanus sativus</i> F ₃		21-24, 26, 30, 31, 34, 36, 44	TERASAWA & SHIMOTOMAI, 1928
<i>Raphanus raphanistrum</i> L.		18	KARPECHENKO, 1924a, 1928.
„ <i>sativus</i>	16		KLEINMAN, 1923.
		18	TERASAWA & SHIMOTOMAI, 1928

¹⁾ Usually all chromosomes appeared unpaired in the heterotypic division.

CRUCIFERAE (continued)	n	2n	
<i>Raphanus</i> (continued)			
<i>Raphanus sativus</i> L.	9	18	KARPECHENKO, 1924b.
		18	" 1928.
" <i>sativus</i> L. prol. <i>niger</i>			
PERS.		18	" 1924a.
" <i>sativus</i> L. prol. <i>olei-</i>			
<i>ferus</i> METZG. . . .		18	" 1924a.
" <i>sativus</i> L. prol. <i>radi-</i>			
<i>cula</i> PERS.		19	" 1924a.
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₁ (sterile) ¹⁾	$\frac{18_1}{2}$	18	" 1927a.
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₁ (fer-			
tile) ²⁾	$\frac{18_1}{2}, \frac{19_1-20_1}{2}$	18	" 1927a.
	$\frac{36_1}{2}, \frac{35_1-32_1}{2}$		
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₁ × <i>Ra-</i>			
<i>phanus sativus</i> . .		27, 28-29	" 1927a.
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₂ ³⁾ . . .		27 or	
		27-29,	
		36 or	
		36-38,	
		45 or	
		40-42,	
		51-53	" 1927a.
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₁	$\frac{18_1^4}{2}$	18	" 1928.
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₂ (triploid) 9 + 9 ₁ ⁵⁾	$\frac{27}{2}$	27	" 1928.

¹⁾ As these hybrids in 1923 were sterile it was assumed that gametes formed with 9 or ca. 9 chromosomes played no part in the production of offspring.

²⁾ Investigations made in 1924 when these same hybrids showed partial fertility when cultivated along with *Raphanus* and *Brassica* plants gave evidence of increased chromosome number and possible formation of polyploid gametes.

³⁾ As no progeny showed increase of cabbage characters, it was assumed that crosses with cabbage did not take place but rather with *Raphanus*.

⁴⁾ Instead of tetrads, groups of cells containing from 6 to 12 chromosomes formed.

⁵⁾ Meiotic division was very irregular, the first division of chromosomes being sometimes entirely omitted. One set each of *Raphanus* and *Brassica* chromosomes supposedly form 9 bivalents + extra *Raphanus*.

CRUCIFERAE (continued)	n	2n	
<i>Raphanus</i> (continued)			
<i>Raphanus sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₂ (tetra- ploid)	18 ¹⁾	36	KARPECHENKO, 1928.
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₂ (penta- ploid)	9 + $\frac{27_1}{2}$ ²⁾	45	" "
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₂ (hypo- hexaploid)	25, 27, ca. 31 ³⁾	51	" "
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₂ (hyper- triploid)	19 ⁴⁾	29	" "
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₂ (hypo- pentaploid).	23 ⁵⁾	41	" "
" × <i>sativus</i> <i>Brassica</i>			
<i>oleracea</i> F ₂ (Hybrid 7-13)	19, 20	36	" "
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> F ₂ (Hybrid 7-150)	19	36	" "
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> (triploids inter se)		18-24 ⁶⁾	" "
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> (triploid × <i>Raphanus sativus</i> .		18	" "
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> (tetraploids inter se)		36	" "

¹⁾ Divisions were regular, two sets each of *Raphanus* and *Brassica* forming 18 bivalents.

²⁾ Two sets of *Raphanus* chromosomes were considered to have formed 9 bivalents, while the third set of *Raphanus* + the two sets of *Brassica* chromosomes formed the 27 univalents.

³⁾ It is supposed that two sets of *Raphanus* + 2 sets of *Brassica* chromosomes formed 18 bivalents and the remainder, perhaps 9 of *Brassica* + 6 of *Raphanus*, formed 15 univalents.

⁴⁾ It is assumed that this complex was formed from a *Raphanus* gamete (n = 9) and an F₁ gamete with 20 chromosomes = 10B + 10R.

⁵⁾ The character of meiosis remained the same as in the pentaploid but with less univalents.

⁶⁾ The majority had 18 chromosomes.

CRUCIFERAE (continued)	n	2n	
<i>Raphanus</i> (continued)			
<i>Raphanus sativus</i> × <i>Brassica</i>			
<i>oleracea</i> (hypohe- xaploid progeny) . .		40-43	KARPECHENKO, 1923.
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> (hypopen- taploid)		39-41	" "
" <i>sativus</i> × <i>Brassica</i>			
<i>oleracea</i> (triploid × hypohehexaploid = hypoenneaploid) .		78	" "
" <i>sativus radicle</i> ×			
<i>Brassica oleracea ca-</i> <i>pitata f. rubra</i> F. . .	$4-8 + 10_1 - 2_1, 18$ $\frac{2}{2} \frac{2}{2}$		PIECH & MOLDENHAWER, 1927.
	10-18 ¹⁾		
<i>Lunaria annua</i> (= <i>biennis</i>) . .		24	LAIBACH, 1907.
<i>Capsella</i> (= <i>Bursa bursa pasto-</i> <i>ris</i>)	16		" "
		32	ROSENBERG, 1904b.
<i>Bursa bursa-pastoris</i> (L.) BRIT- TON.	16	32	HILL, 1927.
	16		" given by SHULL, 1929.
" <i>bursa-pastoris apetala</i>			
OPIZ	16		" 1927; HILL given by SHULL, 1929.
" <i>djurdjurae</i> SHULL . . .	16		HILL, given by SHULL, 1929.
" <i>grandiflora</i> Bois. . . .	8	16	" 1927.
	8		" given by SHULL, 1929.
<i>Capsella Heegeri</i>	16		MARCHAL, 1920.
" <i>Heegeri</i> SOLMS-LAU- BACH	16		HILL, given by SHULL, 1929.
<i>Bursa occidentalis</i> SHULL . . .	16		" 1927; HILL, given by SHULL, 1929.
" <i>occidentalis</i> subsp. <i>Ma-</i> <i>deirae</i> SHULL	16		HILL, given by SHULL, 1929.
" <i>orientalis</i> SHULL	16		" 1927; HILL, given by SHULL, 1929.
" <i>rubella</i> REUT.	8		HILL, 1927; HILL, given by SHULL, 1929.
" <i>tuscaloosae</i> SHULL . . .	8		HILL, 1927; HILL, given by SHULL, 1929.

¹⁾ In interkinesis the chromosome number is usually 13—15 but may vary from 10—18.

CRUCIFERAE (Continued)	n	2n	
<i>Capsella</i> (= <i>Bursa</i>) <i>Viguieri</i>	8		MARCHAL, 1920.
<i>Bursa Viguieri</i> BLARINGHEM	8		HILL, 1927; HILL, given by SHULL, 1929.
<i>Camelina sativa</i> L. CRANTZ			
subsp. <i>Alyssum</i> (MILLER)			
THELLUNG	21 ¹⁾		JARETZKY, 1928a.
<i>Neslia paniculata</i> DESV.	7		" "
<i>Draba alpina</i> L. probably			
	32		HEILBORN, 1927.
" <i>borealis</i> DC. ²⁾	40		" "
" <i>cacuminum</i> ELIS. EKM. . . ca. 30			" "
" <i>condensata</i> (LANGE) ³⁾	32		" "
" <i>daurica</i> DC.	16		JARETZKY, 1928b.
" <i>fladnizensis</i> WULF.	8		HEILBORN, 1927.
" <i>incana</i> L.	16		" "
<i>Draba incana</i> L. f. <i>hebecarpa</i>			
LINDBL. ⁴⁾	16		HEILBORN, 1927.
" <i>Magellanica</i> LAM. subsp.			
<i>borea</i> ELIS. EKM. ⁵⁾	32		" "
" <i>Magellanica</i> LAM. subsp.			
<i>borea</i> ELIS. EKM. var.			
<i>lutescens</i> ELIS. EKM.	32		" "
" <i>Magellanica</i> LAM. subsp.			
subsp. <i>cinera</i> (ADAMS)			
ELIS. EKM.	40		" "
" <i>Magellanica</i> LAM. subsp.			
<i>cinera</i> (ADAMS) ELIS.			
EKM. var. <i>dovreensis</i> (F ₁)			
ELIS. EKM.	32		" "
" <i>Magellanica</i> LAM. subsp.			
<i>cinera</i> (ADAMS) ELIS.			
EKM. var. <i>brachysili-</i>			
<i>qua</i> (MELA) ELIS. EKM.	24		" "
" <i>Magellanica</i>	32 ⁶⁾		" (1926), 1929.
	40 ⁷⁾		" " "
	24 ⁸⁾		" " "

¹⁾ Considerable irregularity in the heterotypic division was found.

²⁾ This plant is considered as belonging to the *D. unalaschiana* group.

³⁾ This is a "condensata"-form of *D. Magellanica borea*.

⁴⁾ Plants from two different regions were examined.

⁵⁾ Specimens from three different places were examined.

⁶⁾ Most of the forms of *D. Magellanica* had 32 chromosomes.

⁷⁾ Two forms of *D. Magellanica*, one from Spitzbergen and one from Greenland, had 40.

⁸⁾ One form of *D. Magellanica* from Finland had 24 chromosomes.

CRUCIFERAE (continued)	n	2n	
<i>Draba nivalis</i> LILJEBL.	8		HEILBORN, 1927.
<i>Draba rupestris</i> R. Br. LINDBL.			
f. <i>leiocarpa</i>	24 ¹⁾	"	"
<i>rupestris</i> R. Br. LINDBL.			
f. <i>hebecarpa</i>	24 ²⁾	"	"
<i>rupestris</i>	24	"	(1926), 1929.
cf. <i>unlaschkiana</i> DC. . . .	40	"	1927.
<i>gladnizensis</i> × <i>nivalis</i> (= <i>D. curtisiliqua</i> ZETT.)	8	"	"
<i>Erophila cochleoides</i>		12 ³⁾	BANNIER, 1923.
	7		WINGE, 1925, 1926.
<i>confertifolia</i>		24 ³⁾	BANNIER, 1923.
	15		WINGE, 1925, 1926.
<i>violacea-petiolata</i> . . .		12 ³⁾	BANNIER, 1923.
	ca. 35		WINGE, 1925.
	32	"	"
<i>Aubrietia Columnae</i> GUSS. . .	8		JARETZKY, 1928a.
<i>deltoides</i> (L.) DC. . . .	8	"	"
<i>edentula</i> BOISS.	8	"	"
<i>Libanotica</i> BOISS. . . .	8	"	"
<i>Stenophragma Thalianum</i> . .		10	LAIBACH, 1907, GRÉGOIRE 1912.
	5		WINGE, 1925.
<i>Thalianum</i> CELAK.	5		JARETZKY, 1928a.
<i>Turritis glabra</i> L.	16	"	"
<i>Arabis albida</i> STEV.	8	"	"
<i>alpina</i> L.	8	"	"
<i>bellidifolia</i> JACQ. . . .		16	"
<i>hirsuta</i> SCOP.	16	"	"
<i>muralis</i> BERTOLONI sub- sp. <i>collina</i> (TEN.) THEL- LUNG var. <i>rosea</i> DC. . .	8	"	"
<i>procurrens</i> WALDST et KIT.	8	"	"
<i>pumila</i> WULF.	8	"	"
<i>sicula</i> HUET.	8	"	"
<i>turrita</i> L.	8	"	"
<i>sp.</i> (?)	16	"	"

¹⁾ In a second plant from another region, 22—25 chromosomes were counted, n = probably 24.

²⁾ Plants from three different regions were examined.

³⁾ In previous list, GAISER (1926), these numbers were incorrectly given in the haploid column.

CRUCIFERAE (continued)		n	2n	
<i>Cordaminopsis Halleri</i> (L.)				JARETZKY, 1928a.
HAYCK.	8		" "	
<i>Erysimum cheiranthoides</i> L. . .	8		" "	
" <i>helveticum</i> (JACQ.)				
DC.	24		" "	
" <i>hieraciifolium</i> L. . .		ca. 32	" "	
" <i>ochroleucum</i> DC. . .	ca. 16		" "	
" <i>silvestre</i> (CRANTZ) .				
KERNER	24		" "	
<i>Cheiranthus Cheiri</i> L.	7	14	" "	
<i>Alyssum Arduini</i> (= <i>saxatile</i>) .	8	16	LAIBACH, 1907.	
" <i>Arduini</i> (= <i>saxatile</i>				
L.)	8		JARETZKY, 1928a.	
" <i>calycinum</i> L.	16		" "	
" <i>corymbosum</i> GRIESE-				
BACH	8		" "	
" <i>edentulum</i> WALDST. et				
KIT.	8		" "	
" <i>Murale</i> (argenteum) .	8	16	LAIBACH, 1907.	
" <i>Wierzbikii</i>	8	16	" "	
<i>Clypeola Jonthlaspi</i> L. subsp.				
<i>Glaudini</i> (TRACHSEL) THEL-				
LUNG	16		JARETZKY, 1928a.	
<i>Lobularia maritima</i> L.	12		" "	
<i>Berteroa incana</i> DC.	8		" "	
<i>Malcolmia africana</i>	7		" "	
" <i>maritima</i>	7		" "	
<i>Hesperis matronalis</i> L.	14		" "	
" <i>tristis</i> L.	14		" "	
<i>Matthiola incana</i>	7	14	ALLEN, I. 1924; CORNER, 1927.	
	7		JARETZKY, 1928a.	
" <i>incana</i> (mutants) . .	7+1 ¹⁾		FROST & MANN, 1924.	
	7+2 ²⁾		" " " " "	
	2			
" <i>incana</i> R.Br. „Snow-				
flake”	7		FROST, 1927; LESLEY & FROST,	
			1928.	
	7	14	LESLEY & FROST, 1927.	
" <i>incana</i> R.Br. (pure				
single variety). . .	7	14	" " " "	

¹⁾ The trisomic mutants observed in 1924 were large, crenate and slender.

²⁾ The tetrasomic mutants observed in 1924 were large, slender, and large crenate. Extreme slender might be either trisomic or tetrasomic.

CRUCIFERAE (continued)	n	2n
<i>Matthiola</i> (continued)		
<i>Matthiola incana</i> R. Br. var.		
„Snowflake” . . .	8 ¹⁾	LESLEY & FROST, 1927.
<i>incana</i> R. Br. var.		
„Snowflake” (pure		
single variety) 7 ₁ & 7 ₂	7 + 1 ₁ ²⁾	„ „ „ „
<i>incana</i> R. Br. „Snow		
flake” (small) . . .	7 + 1 ₁	„ „ „ „
<i>incana</i> R. Br. „Snow-		
flake” (extremely		
small)	7 + 2 ₁ 2	„ „ „ „
<i>incana</i> L. Br. „Snow-		
flake” (mutants) . 8 ³⁾ , 9 ⁴⁾ ,		
	10 ⁵⁾	FROST, 1927.
<i>Bunias crucago</i> L.	7	JARETZKY, 1928a.
„ <i>orientalis</i> L.	7 S ₃ ⁶⁾	42 „ „
<i>Coringia orientalis</i> (L.)		
DUMONT.	7	„ „
SARRACENIALES		
SARRACENIACEAE		
<i>Sarracenia purpurea</i>	12	SHREVE, 1906.
„ <i>rubra</i>	12	NICHOLS, 1908.
„ <i>variolaris</i>	12	„ „
DROSERACEAE		
<i>Drosera capensis</i>		36-38 HEITZ, 1926.
„ <i>filiformis</i>	10	LEVINE, 1916.
„ <i>longifolia</i>	20	ROSENBERG, 1904a.
	20	40 „ 1903, 1909d.
„ <i>pygmaea</i>		20-(22) HEITZ, 1926.
„ <i>rotundifolia</i>	8	HUIE, 1897, 1899, PETERS, 1897, ROSENBERG, 1899.
	10	ROSENBERG, 1904a; PACE, 1912
	10	20 „ 1903, 1909d.

^{b)} S₃ means „dreiwertige Sammelchromosomen“, i.e., each is the equivalent of 3 somatic chromosomes.

DROSERACEAE (continued)		n	2n	
<i>Drosera</i> (continued)				
<i>Drosera spatulata</i>			ca. 72	HEITZ, 1926.
„ <i>rotundifolia</i> × <i>longifolia</i> (= <i>D. obovata</i>)	$\frac{10+20}{2}$	30		ROSENBERG, 1903, 1904a, 1909d.
ROSALES				
PODOSTEMACEAE				
<i>Podostemon subulatus</i> GARDN.		ca. 40		WENT, 1910.
<i>Lawia zeylanica</i> TUL.	10			MAGNUS, 1913.
<i>Oenone Imthurni</i>	ca. 12-14			WENT, 1910.
„ <i>Versteegiana</i>	ca. 8			„ 1926.
<i>Mourera fluviatilis</i>	ca. 14			„ 1910.
HYDROSTACHYACEAE				
<i>Hydrostachys imbricatus</i>	10-12			PALM, 1915.
CRASSULACEAE				
<i>Bryophyllum calycinum</i> SALISB.		40(38?)		TAYLOR, 1926.
<i>Penthorum sedoides</i> L.	8			ROCÉN, 1928.
SAXIFRAGACEAE				
<i>Saxifraga granulata</i>	> 30			JUEL, 1907.
	16			SCHÜRHOFF, 1925a; MARSDEN-JONES & TURRILL, 1928.
„ <i>rosacea</i>	16			MARSDEN-JONES & TURILL, 1928.
„ <i>sponhemica</i>	ca. 15			PACE, 1912.
„ <i>rosacea</i> × <i>S. granulata</i> F ₁	16			MARSDEN-JONES & TURRILL, 1928.
„ <i>rosacea</i> × <i>S. granulata</i> F ₂	32 ¹⁾			MARSDEN-JONES & TURRILL, 1928.
<i>Parnassia palustris</i>	10			PACE, 1912.
<i>Francoa appendiculata</i>	ca. 20			GAUMANN, 1919.
<i>Philadelphus coronarius</i>	10			V. D. ELST, 1909.
RIBES ²⁾				
Section <i>Berisia</i>				
<i>Ribes orientale</i> ♀ DESF. ³⁾		16		MEURMAN, 1928.
„ <i>saxatile</i> ♂ PALL. ³⁾		16		„ „

¹⁾ Reduction divisions were very irregular.

²⁾ MEURMAN does not state whose sectional classification he is using. It does not follow ENGLER & PRANTL. According to TISCHLER (1926) 1929 it follows SANCZEWSKI (1907).

³⁾ MEURMAN found no evidence of heterochromosomes when carefully comparing the 8 pairs of chromosomes in these dioecious species.

SAXIFRAGACEAE (continued)	n	2n	
RIBES (continued)			
Section <i>Ribes</i> ia .			
Subsection <i>Symphlocalyx</i>			
<i>Ribes aureum</i> ¹⁾	8		TISCHLER, 1927a, (1926), 1929.
„ <i>aureum</i> PURSH. ²⁾	8	16	„ 1927b; MEURMAN, 1928.
„ <i>aureum</i> var. <i>chrysococcum</i> RYDB.	8	16	MEURMAN, 1928.
„ <i>odoratum</i> WENDL.	8	16	„ „
Subsection <i>Calobotrya</i>			
<i>Ribes sanguineum</i> ¹⁾	8		TISCHLER, 1927a, (1926), 1929.
„ <i>sanguineum</i> PURSH. ²⁾	8	16	TISCHLER, 1927b; MEURMAN, 1928.
		16 & 32 ³⁾	TISCHLER, 1927b.
Subsection <i>Eucoreosoma</i>			
<i>Ribes americana</i> MILL. ⁴⁾	8	16	MEURMAN, 1928b.
„ <i>nigrum</i>		16 ⁵⁾	TISCHLER, 1927a; DARLINGTON 1927a.
	8		TISCHLER, (1926), 1929.
„ <i>nigrum</i> L. ⁴⁾	8	16	MEURMAN, 1928.
Subsection <i>Ribes</i> ia			
<i>Ribes multiflorum</i> KIT.	8	16	MEURMAN, 1928.
„ <i>rubrum</i>	8		TISCHLER, (1926), 1929.
„ <i>rubrum</i> L.	8	16	MEURMAN, 1928.
<i>Grossularioides</i>			
<i>Ribes lacustre</i>	8		TISCHLER, (1926), 1929.
„ <i>lacustre</i> POIR.	8	16	MEURMAN, 1928.
<i>Grossularia</i>			
<i>Ribes leptanthum</i> GRAY	8	16	MEURMAN, 1928.
„ <i>oxyacanthoides</i>		16 ⁵⁾	DARLINGTON, 1927a.
„ <i>oxyacanthoides</i> var. <i>Purpusii</i> KOEHNE	8	16	MEURMAN, 1928.

¹⁾ TISCHLER, (1926) 1929 found the nuclei of *R. sanguineum* to be larger than those of *R. aureum*. Then TISCHLER (1927b, 1928a) described the chromosomes of the former species as being larger than those of the latter, and this difference was recognizable in the hybrid *R. Gordonianum*. MEURMAN (1928) found greater differences between the chromosomes of any one species than between those of the two species.

²⁾ One or two lagging chromosomes were observed by MEURMAN (1928) in these „and some other species.”

³⁾ Syndiploid nuclei were found.

⁴⁾ Irregularities in meiotic divisions occurred to the greatest extent in these two of all the species studied by MEURMAN (1928).

⁵⁾ DARLINGTON (1927a) found one pair of chromosomes to have satellites. Root-tips from normal and reverted plants of *Ribes nigrum* show similar groups of 16 chromosomes.

SAXIFRAGACEAE (continued)	n	2n	
RIBES (continued)			
<i>Ribes grossularia</i>	8		TISCHLER, 1927a, (1926) 1929. 16 ¹⁾ DARLINGTON, 1927a.
Section (?) ²⁾			
<i>Ribes alpinum</i> L.	8		MEURMAN, 1925a, 1925b.
" <i>alpinum</i>	8		TISCHLER, (1926), 1929.
" <i>petraeum</i>	8		TISCHLER, 1927a, (1926) 1929.
" sp. (?) „Whitesmith”			
Gooseberry var.		16 ¹⁾ DARLINGTON, 1927a.	
" <i>Carrierei</i> SCHNEID. (=			
<i>R. glutinosum</i> × <i>R. ni-</i>		16	MEURMAN, 1928.
<i>grum</i>)			
" <i>Culverwellii</i> Mac FARL.			
(= <i>R. nigrum</i> × <i>R. gros-</i>			
<i>sularia</i>)	$1 + 14\frac{1}{2}, 4 + 8\frac{1}{2}$	16	" "
	$\frac{2}{2}$		
<i>Ribes Gordonianum</i> LEM. (= <i>R.</i>			
<i>sanguineum</i> PURSH. ×			
<i>R. aureum</i> PURSH.)	8		TISCHLER, 1906, 1928a.
	ca. 12 ³⁾		" 1921-22.
	$16\frac{1}{2}$	16	" 1927b.
	$\frac{2}{2}$		
	$8 + 0, 0 + 16\frac{1}{2}$	16	MEURMAN, 1928.
	$\frac{2}{2}$		
<i>Ribes holosericeum</i> OTTO. S.			
DIETR. (= <i>R. rubrum</i> ×			
<i>R. petraeum</i>)	8	16	" "
" <i>innominatum</i> JANCZ. ⁴⁾			
(= <i>R. divaricatum</i> × <i>R.</i>		16	" "
<i>grossularia</i>).			
" <i>intermedium</i> CARR. (= <i>R.</i>			
(<i>album</i>) <i>sanguineum</i> ×			
<i>R. nigrum</i>)	8	16	TISCHLER, 1906.
	12 ³⁾		" 1921-22.
" <i>pallidum</i> (<i>R. rubrum</i> ×			
<i>R. petraeum</i>)	10 ⁵⁾		HIMMELBAUR, 1912.

¹⁾ DARLINGTON (1927a) found one pair of chromosomes to have satellites. Roottips from normal and reverted plants of *Ribes nigrum* show similar groups of 16 chromosomes.

²⁾ The following species were not classified under sections.

³⁾ TISCHLER (1927a) stated these numbers were incorrect and confirmed the chromosome numbers determined in 1906.

⁴⁾ A few lagging univalents were seen in meiotic divisions of these hybrids.

⁵⁾ Eleven chromatin bodies were seen in a stage of diakinesis, but one was thought to be the nucleolus.

SAXIFRAGACEAE (continued)		n	2n	
<i>Ribes</i> (continued)				
<i>Ribes robustum</i> JANCZ. (= <i>R.</i>				
<i>niveum</i> × ? <i>incerne</i>) . . .	8	16	MEURMAN, 1928,	
„ <i>succirubrum</i> LABEL ¹⁾ (=				
<i>R. niveum</i> × <i>R. divari-</i>				
<i>catum</i>)		16	„ „	
„ <i>urceolatum</i> TAUSCH. (=				
<i>R. multiflorum</i> × <i>R. pe-</i>				
<i>tracum</i>)		16	„ „	
BRUNIACEAE				
<i>Staavia glutinosa</i> THUNB. . . .	8		SAXTON, 1910.	
PLATANACEAE				
<i>Platanus acerifolia</i>	10-11		BRETZLER, 1924.	
„ <i>orientalis</i> (= <i>acerifo-</i>				
<i>lia</i>)	21		WINGE, 1917.	
„ <i>occidentalis</i>	10-11		BRETZLER, 1924.	
	8	16	BROUWER, 1924.	
„ <i>orientalis</i>	10-11		BRETZLER, 1924.	
	8	16	BROUWER, 1924.	
ROSACEAE				
<i>Cydonia oblonga</i> ²⁾	17		KOBEL, 1926b.	
„ <i>oblonga</i> MILL.		34	RYBIN, 1926.	
„ <i>oblonga</i> MILL ²⁾ (= <i>C.</i>				
<i>vulgaris</i> PERS.) var.				
Beretzky	17		KOBEL, 1927.	
„ <i>oblonga</i> MILL. (= <i>C.</i>				
<i>vulgaris</i> PERS.) var.				
Mammuth	17		„ „	
„ <i>Japonica</i> ²⁾	17		„ 1926b.	
<i>Chaenomeles japonica</i> LINDL ²⁾ .	17		„ 1927.	
„ <i>Maulei</i> C. K.				
SCHNEIDER ²⁾	17		„ „	
<i>Pirus communis</i> L.	4		OSTERWÄLDER, 1910.	
		34	RYBIN, 1926.	
„ <i>communis</i> var. <i>Alexander</i>				
<i>Lucas</i> ³⁾		ca. 46	FLORIN, 1927.	
„ <i>elaeagrifolia</i> PALL. ⁴⁾ . .		34	RYBIN, 1926.	
„ <i>salicifolia</i> PALL. ⁴⁾ . . .	17		KOBEL, 1927.	
„ <i>sinensis</i> LDL. ⁴⁾ (= <i>P.</i>				
<i>ussuriensis</i> MAXIM. . . .	17		„ „	

¹⁾ A few lagging univalents were seen in meiotic divisions of these hybrids.

²⁾ KOBEL (1928) states that *Cydonia japonica*, *Maulei*, and *oblonga* are diploid.

³⁾ In heterotypic metaphase plates all chromosomes have not united as gemini. Division is irregular and many micronuclei are formed.

⁴⁾ KOBEL (1928) refers to these species as being diploid.

ROSACEAE (continued)	n	2n	
<i>Pirus ussuriensis</i> MAXIM.		34	RYBIN, 1926.
„Kulturbirne” (Normal)	17		KOBEL, 1926b.
<i>Pirus</i> sp. (?) (Cultivated Races)			
<i>Amanlis Butterbirne</i>	$\frac{46_1}{2}$		„ 1927.
<i>Andre Desportes</i>	$16+3_1, 17+1_1$		„ 1926a.
	$\frac{17}{2}$		„ 1927.
<i>Barikerbirne</i>	$47_1^1)$		KOBEL, 1926a.
	$\frac{2}{2} 34+8_1-17_1$		„ 1926b.
	51_1		„ 1927.
	$\frac{2}{2}$		
<i>Diels Butterbirne</i>	45_1		„ „
	$\frac{2}{2} 34+8_1-17_1$		„ 1926b.
<i>Fondante Thirriot</i>	17		„ 1927.
<i>Frühe von Trévoux</i>	17		„ „
<i>Gellerts Butterbirne</i> (= Beur- <i>ré</i> HARDY)	$16+1_1$		„ 1926a.
	17		„ 1926b, 1927.
<i>Gute Luise von Avrenches</i>	17		„ 1927.
<i>Hardenponte Butterbirne</i>	17		„ „
<i>Hofratsbirne</i> (= <i>Conseiller à</i> <i>la cour</i>)	$\frac{44_1-48_1}{2}$		„ „
<i>Knollbirne</i>	$19-21^2)$		„ „
<i>Lebrun's Butterbirne</i>	17		„ „
<i>Neue Poiteau</i>	17		„ „
<i>Pastorenbirne</i> (= <i>Poirre Cuvé</i>)	$32^3)$		„ 1926a.
	$55_1 34+8_1-17_1$		„ 1926b, 1927.
	$\frac{2}{2}$		„ 1927.
<i>Schweizer-Wasserbirne</i>	ca. $\frac{47_1}{2}$		„ „
<i>Theilersbirne</i>	at least		
	$23^4)$		„ 1926a.
	$34+8_1-17_1$		„ 1926b, 1927.
	48_1		„ 1927.
	$\frac{2}{2}$		

¹⁾ The best anaphase figure for determining the number of chromosomes showed groups of 21 and 22 chromosomes + 4 others. It was considered that the total number might be 48.

²⁾ An exact determination could not be made.

³⁾ Thirty-two chromosomes were usually counted on the heterotypic plates but oftentimes as many as 35 were distinguished.

⁴⁾ The heterotypic plates showed 24 to 27 chromosomes and the homoeotypic plates 23 to 29.

ROSACEAE (continued)	n	2n	
<i>Pirus</i> (continued)			
<i>Vereins Deschantsbirne</i> (=			
<i>Doyenné du Commice</i>) . . .	16+1 ₁		KOBEL, 1926a.
	17		" 1926b, c, 1927.
<i>Williams Christbirne</i> (=			
<i>Bartlettbirne</i>)	16+2 ₁		" 1926a.
	$\frac{2}{2}$		
	17		" 1926b, c, 1927.
<i>Pirus malus</i> var. <i>Antonovka</i> .	17	34	RYBIN, 1927a.
" <i>malus</i> var. <i>Antonovka Ka-</i>			
<i>menitchka</i>		34	" "
" <i>malus</i> var. <i>Aport</i>		34	" "
" <i>malus</i> var. <i>Astrachan</i>			
<i>White</i>	17	34	" "
" <i>malus</i> var. <i>Weisser As-</i>			
<i>trachan</i>	17		KOBEL, 1927.
" <i>malus</i> var. <i>Vit Astrakan</i> .	17, 0-11+		
	$\frac{34_1-0_1}{2}$		HEILBORN, 1928b.
" <i>malus</i> var. <i>Babuskindo</i> . .		34	RYBIN, 1927a.
" <i>malus</i> var. <i>Belleflower</i>			
<i>Yellow</i>		34	" "
" <i>malus</i> var. <i>Belleflower</i> ×			
<i>Kitaika of Mitchurin</i> .		34	" "
" <i>malus</i> var. <i>Barlovskoje</i> .		34	" "
" <i>malus</i> var. <i>Belvi Naliv</i> .	17	34	" "
" <i>malus</i> var. <i>Canadian Rei-</i>			
<i>nette</i>		15	" "
" <i>malus</i> var. <i>Kanada Rei-</i>			
<i>nette</i>	$\frac{38_1-40_1}{2}$		KOBEL, 1927.
" <i>malus</i> var. <i>Calville du roi</i>		34	RYBIN, 1927a.
" <i>malus</i> var. <i>Candille Sinap</i>		34	" "
" <i>malus</i> var. <i>Charlamowsky</i>	17, 16+2 ₁ ,		HEILBORN, 1928b.
	$\frac{2}{2}$		
	15+4 ₁ , 10+13 ₁		
	$\frac{2}{2}$		
" <i>malus</i> var. <i>Dash-Alma</i> .		34	RYBIN, 1927a.
" <i>malus</i> var. <i>Delicious</i> . .	14		SHOEMAKER, 1926.
" <i>malus</i> var. <i>Djir-Hadzhi</i> .		34	RYBIN, 1927a.
" <i>malus</i> var. <i>Golden Rei-</i>			
<i>nette of Kursk</i>		34	" "
" <i>malus</i> var. <i>Gravensteiner</i> ca.	19+7 ₁		HEILBORN, 1928b.
	$\frac{2}{2}$		

ROSACEAE (continued)

n

2n

Pirus (continued)

		at least	
		24 ¹⁾	KOBEL, 1926a.
		34+8 ₁ -17 ₁	" 1926b.
		45 ₁ -46 ₁ ²⁾	" 1927.
		$\frac{45_1-46_1}{2}$	
<i>Pirus malus</i> var. <i>Gul Richard</i>			
(Gelber Richard) . . .	17		HEILBORN, 1928b.
" <i>malus</i> var. <i>Gule-Penbe</i> .		34	RYBIN, 1927a.
" <i>malus</i> var. <i>Hampus</i> . .	17, 16+2 ₁		
	$\frac{2}{2}$		
	4-5+26 ₁ -24 ₁		HEILBORN, 1928b.
	$\frac{2}{2}$		
" <i>malus</i> var. <i>Lord Grosve-</i>			
<i>nor</i>		34	RYBIN, 1927a.
" <i>malus</i> var. <i>Oranie</i> . . .	17		HEILBORN 1928b.
" <i>malus</i> var. <i>Rambur of</i>			
<i>Tsar. Koje Selo</i>		34	RYBIN, 1927a.
" <i>malus</i> var. <i>Reinette de</i>			
<i>Champagne</i>	26	34, 51 ³⁾	" "
" <i>malus</i> var. <i>Reinette de</i>			
<i>Oberdieck</i>		34	" "
" <i>malus</i> var. <i>Reinette d'Or-</i>			
<i>leano</i>		34	" "
" <i>malus</i> var. <i>Rosmarin blanc</i>	17	34	" "
" <i>malus</i> var. <i>Rother Stetti-</i>			
<i>ner</i>		34	" "
" <i>malus</i> var. <i>Sary-Sinap</i> .		34	" "
" <i>malus</i> var. <i>Sary-tursh-</i>			
<i>Alma</i>		34	" "
" <i>malus</i> var. <i>Skvozhnoy naliiv</i>	17	34	" "
" <i>malus</i> var. <i>Stayman Wi-</i>			
<i>nesap</i>		> 28 ⁴⁾	SHOEMAKER, 1926.
" <i>malus</i> var. <i>Suislepper</i> .		34	RYBIN, 1927a.
" <i>malus</i> var. <i>Tchernoguz</i> .	17	34	" "
" <i>malus</i> var. <i>Titovka</i> . . .	17	34	" "
" <i>malus</i> var. <i>Wealthy</i> . . .	ca. 17		HEILBORN, 1928b.
" <i>malus</i> var. <i>Winter Golden</i>			
<i>Pearmain</i>		34, 51 ³⁾	RYBIN, 1927a.

¹⁾ Higher numbers were also found and in homoetotypic plates 16—28 (most frequently 21—24) were found.

²⁾ Irregular divisions were found in all these species.

³⁾ Among the seedlings, triploid (2n = 51) as well as diploid (2n = 34) plants were found. This variety was found to show irregular divisions.

⁴⁾ At diakinesis a number of bivalents and univalents were arranged irregularly.

ROSACEAE (continued)		n	2n	
<i>Pirus</i> (continued)				
<i>Pirus malus</i> var. <i>Winter Gray</i>				
	<i>Reinette</i>		34	RYBIN, 1927a.
	„ <i>malus</i> var. <i>Zalenka Crimean</i>		34	„ „
MALUS				
Section <i>Eumalus</i> Zabel				
	<i>Malus baccata</i> BORKH. ¹⁾ . . .		34	„ 1926.
	„ <i>communis</i> DC. (= <i>M. silvestris</i> MILL. ²⁾ . . .		34	„ „
	„ <i>silvestris</i> MILL. ¹⁾ . . .	17		KOBEL, 1927.
	„ <i>prunifolia</i> BORKH. ¹⁾ . . .		34	RYBIN, 1926.
	„ <i>pumila</i> var. <i>Niedzwetzkyana</i> C. K. SCHNEIDER ¹⁾ . . .	17		KOBEL, 1927.
	„ <i>pumila</i> var. <i>paradisica</i> C. K. SCHNEID. (Paradise) ¹⁾		34	RYBIN, 1926.
		17		KOBEL, 1927.
	„ <i>pumila</i> var. <i>praecox</i> C. K. SCHNEID. (Doucine) ¹⁾ . . .		34	RYBIN, 1926.
	„ <i>spectabilis</i> BORKH. ¹⁾ . . .		34	„ „
Section <i>Sorbomalus</i> Zabel.				
	<i>Malus angustifolia</i> MICHX. ¹⁾ . . .		34	„ „
	„ <i>coronaria</i> var. <i>ioensis</i> C. K. SCHNEID. ³⁾		65	„ „
	„ <i>ioensis</i>	14		MANEY & WELTER, 1928.
	„ <i>ioensis</i> „Mercer county seedling”	13-15		„ „ „
	„ <i>Sargentii</i> REHD. ³⁾		64-69	RYBIN, 1926.
			68	„ „
	„ <i>Toringo</i> SIEB. ³⁾		64-71	„ „
	„ <i>Zumi</i> REHD. ¹⁾		34	„ „
Section (?) ⁴⁾				
	<i>Malus floribunda</i> SIEB. ¹⁾ ⁵⁾ . . .	17		KOBEL, 1927.
	„ <i>Halliana</i> Koehne . . . $\frac{47_1-(49)_1}{2}$ ⁶⁾			„ „
	„ <i>Scheideckeri</i> ZBL. ¹⁾ . . .	17		„ „
	„Kulturapfel” (Normal) . . .	17		„ 1926b.

¹⁾ KOBEL (1928) referred to all these species as being diploid.

²⁾ Two forms, from European Russia and Transcaucasia, were examined.

³⁾ KOBEL (1928) referred to all these species as being tetraploid.

⁴⁾ The following species were not classified under sections.

⁵⁾ Three different forms coming under this species were examined.

⁶⁾ Metaphase plates showed varying unequal distribution of 46 to 49 (most frequently 47) chromosomes.

ROSACEAE (continued)	n	2n
<i>Malus</i> (continued)		
<i>Malus</i> sp. (Cultivated Races)		
<i>Baldwin</i>	48-49 ¹⁾	KOBEL, 1927.
	$\frac{2}{2}$	
<i>Baumann's Reinette</i>	ca. 36 ¹⁾	" "
	$\frac{2}{2}$	
<i>Berner Rosenapfel</i>	16	" 1926a.
	17	" 1926b ²⁾ , c, 1927.
<i>Bohnapfel</i>	ca. 24 ³⁾	" 1926a.
	34+8 _I -17 _I	" 1926b.
	46 (-49?)	" 1927.
	$\frac{2}{2}$	
<i>Cellini</i>	17	" 1927.
<i>Cox's Orangen-Reibette</i>	17	" "
<i>Damason-Reinette</i>	45-47 ¹⁾	" "
	$\frac{2}{2}$	
<i>Danziger Kantapfel</i>	17	" "
<i>Esopus Spitzenberg</i>	17	" "
<i>Goldreinette von Blenheim</i>	ca. 40 ¹⁾	" "
	$\frac{2}{2}$	
<i>Harbert's Reinette</i>	45 ¹⁾	" "
	$\frac{2}{2}$	
<i>Jacques Lebel</i>	49-(51) ¹⁾	" "
	$\frac{2}{2}$	
<i>Kasseler-Reinette</i>	17	" "
<i>Menznauer Jagerapfel</i> (=		
<i>Rot Kanzler</i>)	ca. 38 ¹⁾	" "
	$\frac{2}{2}$	
<i>Muskat-Reintette</i>	17	" "
<i>Ontario Reinette</i>		33 ⁴⁾ " 1926a.
	17	" 1927.
<i>Pfirsichroter Sommerapfel</i>	17	" "
<i>Reseda-Reinette</i>	> 40 ¹⁾	" "
	$\frac{2}{2}$	
<i>Ribston-Pepping</i>	42 ¹⁾	" "
	$\frac{2}{2}$	
<i>Roter Eiserapfel</i>	47	KOBEL, 1927.
	$\frac{2}{2}$	

¹⁾ Irregular divisions were found in this species.

²⁾ The earlier number (n = 16) for this species was hereby corrected.

³⁾ Higher numbers were also found and in homoeotypic plates 16-28 (most frequently 21-24) were found.

⁴⁾ Only a few vegetative cells showing chromosomes were seen and in the clearest this number of chromosomes was counted, — though 24 was the number usually found in diakinesis.

ROSACEAE (continued)	n	2n	
<i>Malus</i> (continued)			
<i>Schöner von Boskoop</i>	17, 19, $20+9_1, 5_1, 4_1$ $\frac{2}{2}$		KOBEL, 1926a.
		$34+8_1-17_1$	„ 1926b.
	ca. 46 ¹⁾ $\frac{2}{2}$		„ 1927.
<i>Sommergewürzaapfel</i>	17		„ „
<i>Stäfner Rosenapfel</i>	$48-49$ ¹⁾ $\frac{2}{2}$		„ „
<i>Transparente de Croncels</i> . .	17		„ 1926b, 1927.
		$34+8_1$	„ „
<i>Warner's King</i>	42 ¹⁾ $\frac{2}{2}$		„ 1926c, 1927.
<i>Winter-Zitronenapfel</i> . . .	$48-49$ ¹⁾ $\frac{2}{2}$		„ 1927.
<i>Transparente de Croncels</i> ×			
<i>Weisser Astrachan</i>	17		„ „
<i>Zchulanovka</i>		34	RYBIN, 1926.
<i>Mespilus germanica</i>		32	MEYER, J., 1915.
<i>Rubus alleghaniensis</i> PORTER .	7		LONGLEY, 1924a.
„ <i>alleghaniensis</i>	7		JEFFREY, 1925.
„ <i>andrewsianus</i> BLANCHARD .			
„ <i>argutus</i> LINK	ca. 10		LONGLEY, 1924a.
		21	JEFFREY, 1925.
			LONGLEY, 1924a.
		14	JEFFREY, 1925.
„ <i>chamaemorus</i>	28		LONGLEY, 1927a
„ <i>frondosus</i> BIGELOW		42	JEFFREY, 1925
„ <i>hispidus</i> L.	ca 17		LONGLEY, 1924a
		35	JEFFREY, 1925
„ <i>idaeus</i> L. var. „ <i>Superlative</i> ”		14	CRANE & DARLINGTON, 1927.
„ <i>idaeus obtusifolius</i>			
„ <i>willd</i>		14	„ „ „
„ <i>jeckylanus</i> BLANCHARD. ca.	21		LONGLEY, 1924a
		42	JEFFREY, 1925.
„ <i>laciniatus</i> WILLD (? <i>R. Selmeri</i>)		28	CRANE & DARLINGTON, 1927.
„ <i>neglectus</i> PECK.	7		LONGLEY, 1924a.
		14	CRANE & DARLINGTON, 1927.
„ <i>phoenicolasus</i>	7		CHOMISURY, 1924.

¹⁾ Irregular divisions were found in all these species.

ROSACEAE (continued)		n	2n	
<i>Rubus</i> (continued)				
<i>Rubus plicatifolius</i> BLANCHARD	ca. 17			LONGLEY, 1924a.
			35	JEFFREY, 1925.
„ <i>rusticanus</i> MERC. var.				
<i>inermis</i> (<i>R. inermis</i>				
WILLD.)	7	14		CRANE & DARLINGTON, 1927.
„ <i>thrysisger</i> BAB.	5, 14	28	„	„
„ <i>rusticanus</i> MERC. var.				
<i>inermis</i> × <i>R. thrysisger</i>				
BAB.		21, 28 ¹⁾	„	„
	14			
	13+2 ₁			
	12+13+1 ₁		„	„
„ sp. (?) var. <i>Baumforthi</i> .				
seedling ²⁾	7			CHOMISURY, 1927.
„ sp. (?) var. <i>Goliath</i> ²⁾ .	14		„	„
„ sp. (?) var. <i>Harzjuwel</i> ²⁾ .	7		„	„
„ sp. (?) <i>Himalaya berry</i>				
(<i>R. procerus</i>)		49		CRANE & DARLINGTON, 1927.
„ sp. (?) var. <i>Lawton</i> ³⁾ .	24			CHOMISURY, 1927.
„ sp. (?) <i>Laxtonberry</i>				
(Raspberry × Logan-				
berry)		49		CRANE & DARLINGTON, 1927.
„ sp. (?) <i>Laxtonberry</i> (self-				
seedlings)		49	„	„
„ sp. (?) var. <i>Loganberry</i> ⁴⁾	21			CHOMISURY, 1927.
		42		CRANE & DARLINGTON, 1927.
„ sp. (?) Mahdi (Raspber-				
ry × Blackberry) . . .		21	„	„
„ var. <i>Norwich Wonder</i> .		14		CRANE, 1927.
„ var. <i>Superlative</i>		14	„	„
„ sp. (?) var. „ <i>Turcks frü-</i>				
<i>he Rot</i> “ ³⁾	14			CHOMISURY, 1927.
„ sp. (?) <i>Veitchberry</i> (Rasp-				
berry × Blackberry) .		28		CRANE & DARLINGTON, 1927.
„ <i>Loganberry</i> × <i>R. ne-</i>				
<i>glectus</i>		28	„	„
„ <i>Loganberry</i> × <i>R. niveus</i>		28	„	„
<i>Fragaria americana</i> BRITTON .	7	14		ICHIJIMA, 1926.
„ <i>americana alba</i>	7			MANGELSDORF & EAST, 1927.

¹⁾ Of 3 seedlings 2 were triploid (2n = 21) and the other was tetraploid (2n = 28).

²⁾ Divisions were regular.

³⁾ Division was regular.

⁴⁾ The first division was regular but lagging chromosomes often occurred in the second division.

ROSACEAE (continued)	n	2n	
<i>Fragaria</i> (continued)			
<i>Fragaria americana alba</i> PRO-			
TER	7		ICHIJIMA (given by EAST, 1928b)
„ <i>bracteata</i> HELLER . .	7		MANGELSDORF & EAST, 1927; ICHIJIMA (given by EAST, 1928b).
	7	14	ICHIJIMA, 1926.
„ <i>californica</i> CHAM. &			
SCHLECHT	7		MANGELSDORF & EAST, 1927; ICHIJIMA (given by EAST, 1928b).
	7	14	ICHIJIMA, 1926.
„ <i>chiloensis</i> ¹⁾	28		LONGLEY, 1926a.
„ <i>chiloensis</i> DUCHESNE.	28		ICHIJIMA, 1926.
„ <i>chiloensis</i> L.	28		MANGELSDORF & EAST, 1927; ICHIJIMA (given by EAST, 1928b).
„ <i>cuneifolia</i> NUTT (?) .	28		ICHIJIMA, 1926.
„ <i>elator</i>	21		MANGELSDORF, 1927.
	21 ²⁾	42	KIHARA, 1926.
„ <i>elator</i> EHRH.	21		ICHIJIMA, 1926; ICHIJIMA (give by EAST, 1928b).
„ <i>elator</i> EHR (<i>F. Mo-</i>			
<i>schata</i> DUCHESNE) .	21		MANGELSDORF & EAST, 1927.
„ <i>elator</i> var. <i>Royal-</i>			
<i>Hautbois</i>	21		LONGLEY, 1926a.
„ <i>elator</i> var. <i>Monstreus-</i>			
<i>Hautbois</i>	21		LONGLEY, 1926a.
„ <i>glauca</i> RYDB.	28	ca. 56	ICHIJIMA, 1926.
„ <i>glauca</i> WATSON (from			
Canada).	28		MANGELSDORF & EAST, 1927.
„ <i>glauca</i> WATSON . . .	28		ICHIJIMA (given by EAST, 1928b).
„ <i>grandiflora</i> EHR. . .	28		MANGELSDORF & EAST, 1927; ICHIJIMA (given by EAST, 1928b)
„ <i>grandiflora</i> (probably			
<i>F. chiloensis</i>) . . .	28		MANGELSDORF, 1927.
„ <i>grandiflora</i> var.			
„ <i>Champion Early</i> ” .	28		ICHIJIMA, 1926.

¹⁾ *F. chiloensis* from Alaska and British Columbia showed the same chromosome number. (LONGLEY, 1926a).

²⁾ In the reduction divisions in the embryo-sac-mother-cell there were 20 bivalents and 2 univalents which KIHARA thought might be sex chromosomes.

ROSACEAE (continued)	n	2n	
<i>Fragaria</i> (continued)			
<i>Fragaria grandiflora</i> var. „ <i>Che- saapeake</i> ”	28		ICHIJIMA, 1926.
„ <i>grandiflora</i> var. „ <i>Clark's Seedling</i> ”	28		„ „
„ <i>grandiflora</i> var. „ <i>Doc- tor Burrell</i> ”	28		„ „
„ <i>grandiflora</i> var. „ <i>Et- tersburg</i> ”	28		„ „
„ <i>grandiflora</i> var. „ <i>Gard- ners</i> ”	28		„ „
„ <i>grandiflora</i> var. „ <i>La Pearl</i> ”	28		„ „
„ <i>grandiflora</i> var. „ <i>New York</i> ”	28		„ „
„ <i>grandiflora</i> var. „ <i>Pro- gressive</i> ”	28		„ „
„ <i>grandiflora</i> var. „ <i>Suc- cess</i> ”	28		„ „
„ <i>grandiflora</i> var. „ <i>Wil- lium Belt</i> ”	28		„ „
„ <i>Helleri</i> HOLZ.	7	14	„ „
„ <i>Mexicana</i> SCHLECHT.	7		MANGELSDORF & EAST, 1927, ICHIJIMA (given by EAST 1928b).
„	7	14	ICHIJIMA, 1926.
„ <i>vesca</i> ¹⁾	7		MANGELSDORF, 1927; LONGLEY 1926a.
„ <i>vesca</i> L. ²⁾	7		ICHIJIMA (given by EAST, 1928b); MANGELSDORF & EAST, 1927.
„	7	14	ICHIJIMA, 1926.
„ <i>vesca</i> ROSTRUP.	7		MANGELSDORF & EAST, 1927.
„ <i>vesca</i> var. <i>alpina</i> Hort. var. <i>Belle de Meaux</i>	7		LONGLEY, 1926a.
„ <i>vesca</i> var. <i>Americana</i> <i>alba</i>	7		„ „
„ <i>virginiana</i> DUCHESNE ³⁾	28		MANGELSDORF & EAST, 1927; ICHIJIMA (given by EAST, 1928b).
	28	ca. 56	ICHIJIMA, 1926.

¹⁾ *Fragaria vesca* from Petrograd and Tiflis both showed the same number according to LONGLEY (1926a).

²⁾ *Fragaria vesca* L. from Ecuador also had 7 chromosomes, according to MANGELSDORF and EAST (1927).

³⁾ *F. virginiana* # 27 also had 28 chromosomes (MANGELSDORF and EAST, 1927).

ROSACEAE (continued)	n	2n
<i>Fragaria</i> (continued)		
<i>Fragaria virginiana</i> (from Aurora Hills, Virginia).	28	LONGLEY, 1926a.
" <i>virginia</i> var. <i>glauca</i> .	28	" "
" <i>virginiana</i> var. <i>Hort.</i>		
<i>No. 13</i>	28	" "
" <i>virginiana</i> var. <i>Minnesota</i> # 3	26	VALLEAU, 1918.
" (hybrid?) <i>Hort.</i> var.		
<i>"Aroma"</i>	28	LONGLEY, 1926a.
" (hybrid?) <i>Hort.</i> var.		
<i>"Dunlap"</i>	28	" "
" (hybrid?) <i>Hort.</i> var.		
<i>"Harcourt de Thuey"</i> .	28	" "
" (hybrid?) <i>Hort.</i> var.		
<i>"Howard No. 17"</i> .	28	" "
" (hybrid?) <i>Hort.</i> var.		
<i>"Klondike"</i>	28	" "
" (hybrid?) <i>Hort.</i> var.		
<i>"Marshall"</i>	28	" "
" (hybrid?) <i>Hort.</i> var.		
<i>"Progressive"</i> . . .	28	" "
" (hybrid?) <i>Hort.</i> var.		
<i>"Redfew"</i>	28	" "
" (hybrid?) <i>Hort.</i> var. .		
<i>"Rockhill No. 26"</i> .	28	LONGLEY, 1926a.
" (hybrid?) <i>Hort.</i> var.		
<i>"Royal Sovereign"</i> .	28	" "
" <i>bracteata</i> × <i>F. Helleri</i>	14	ICHIJIMA (given by EAST, 1928b).
	7 & 14 ¹⁾	ICHIJIMA, 1926.
" <i>bracteata</i> × <i>F. virginiana</i>	$7 + 21 \frac{1}{2}$ ²⁾	" "
" <i>glauca</i> × <i>F. virginiana</i>	28	" "
" <i>Helleri</i> × <i>F. americana</i>	7	" "
" <i>vesca</i> × <i>F. americana</i>	7	" "

¹⁾ One of the F_1 plants and the F_2 hybrids obtained by ICHIJIMA (1926) by selfing this plant, had 14 chromosomes as the haploid number.

²⁾ In the meiotic division of this hybrid irregularities were observed and irregular tetrad formation resulted.

ROSEACEAE (continued)	n	2n
<i>Fragaria</i> (continued)		
<i>Fragaria vesca</i> × <i>F. Helleri</i> . .	7	ICHIJIMA, 1926.
„ <i>vesca</i> var. <i>alpina</i> Hort		
var. <i>Belle de Meaux</i>		
× <i>F. chiloensis</i> . .	7	LONGLEY, 1926a.
„ <i>vesca</i> var. <i>americana</i>		
<i>alba</i> × <i>F.</i> (hybrid?)		
hort. var. <i>Aroma</i> . .	28 ¹⁾	„ „
„ <i>virginiana</i> Hort. var.		
No. 27 × <i>F. chiloensis</i>	28 ²⁾	„ „
„ <i>virginiana</i> Hort. var.		
No. 27 × <i>F.</i> (hybrid?)		
hort. var. „Howard		
No. 17”	28	„ „
„ <i>virginiana</i> Hort. var		
No 27 × <i>F.</i> (hybrid		
hort. var. „Marshall	28	„ „
„ (hybrid?) Hort. var.		
„Dunlap” × <i>F. vir-</i>		
<i>giniana</i> hort. var.		
No. 13	28	„ „
„ (hybrid?) Hort. var.		
„Howard No. 17” ×		
<i>F. chiloensis</i>	28	„ „
„ (hybrid?) Hort. var.		
„Minn. No. 82 × <i>F.</i>		
(hybrid?) hort. var.		
„Marshall”	28	„ „
<i>Duchesnea indica</i>	42	ICHIJIMA, 1926.
„ <i>indica</i> ANDR.	42	MANGELSDORF & EAST, 1927.
<i>Potentilla alba</i>	14	TISCHLER, 1928b.
„ <i>anserina</i>	16	FORENBACHER, 1914 (given by
		TISCHLER, 1921-22).
„ <i>anserina</i> L (gigas		
form)	22(?) ³⁾	ROSCOE, 1927b.
„ <i>aurea</i>	ca. 28	TISCHLER, 1928b.
„ <i>erecta</i> (= <i>silvestris</i>) .	16	FORENBACHER, 1914 (given by
		TISCHLER, 1921-22)

¹⁾ In one plant of this cross only 7 chromosomes were found.

²⁾ Irregular meiosis was observed in this hybrid.

³⁾ Though this number was found on one homoeotypic equatorial plate, fewer chromosomes were found on the sister plate. Very irregular divisions made it difficult to state the definite number of chromosomes present.

ROSECEAE (continued)	n	2n	
<i>Potentilla</i> (continued)			
<i>Potentilla reptans</i>	16		FORENBACHER, 1914 (given by TISCHLER, 1921-22).
" <i>rubens</i> ZIMM.	16 ¹⁾		TISCHLER, 1908.
" <i>rupestris</i>	8		FORENBACHER, 1914 (given by TISCHLER, 1921-22).
" <i>Tabernaemontani</i> ASCHERS.	16		TISCHLER, 1908.
" <i>Tabernaemontani</i> ASCHERS. × <i>P. ru-</i> <i>bens</i> ZIMM.	16	32	" "
<i>Geum coccineum</i>		70-(72)	HEITZ, 1926.
<i>Alchemilla cuneata</i> GAUD. . .	32		STRASBURGER, 1904a.
" <i>jallax</i> BUS.	32		" "
" <i>gelida</i> BUS.	32		" "
" <i>grossidens</i> BUS.	32		" "
" <i>micans</i> BUS.	32		" "
" <i>pentaphylla</i> L.	32		" "
" <i>speciosa</i> BUS.	32		" "
" <i>splendens</i> CHRIST.	32	ca. 64	" "
<i>Rosa acicularis</i>		56	BLACKBURN, 1925.
" <i>acicularis</i> LINDL. a <i>fennica</i> LALL. ²⁾	28		TÄCKHOLM, 1922.
" <i>acicularis</i> f. <i>fennica</i> LALL. .	21		" " ; PENLAND, 1923.
" <i>arvensis</i>	7		BLACKBURN, 1925.
" <i>arvensis</i> HUDS.	7	14	BLACKBURN & HARRISON, 1921 TÄCKHOLM, 1922.
" <i>blanda</i>	14	28	BLACKBURN, 1925.
" <i>blanda</i> AIT.	7		TÄCKHOLM, 1920; PENLAND, 1923.
"	14		TÄCKHOLM, 1922.
" <i>canina</i>	8		STRASBURGER, 1904b.
" <i>canina</i> L.		35	HURST, 1927.
" <i>canina persaticifolia</i> A. & M.	7+ca.20 ₁		ROSENBERG, 1909b.
" <i>canina</i> varieties ³⁾	7+21 ₁		TÄCKHOLM, 1922; BLACKBURN & HARRISON, 1921.
" <i>carolina</i>	7		BLACKBURN, 1925.

¹⁾ This number was judged from the hybrid with *P. Tabernaemontani* ASCHERS.

²⁾ TÄCKHOLM (1922) was uncertain about the specific determination of this form.

³⁾ In previous list, GAISER (1926) are given 4 varieties of *R. canina* found by BLACKBURN and HARRISON (1921), and 7 by TÄCKHOLM (1922), having 7 + 21₁ as the haploid number.

ROSACEAE (continued)	n	2n	
<i>Rosa</i> (continued)			
<i>Rosa carolina</i> L.		14	TÄCKHOLM, 1920, 1922.
	7	14	HURST, 1927.
„ <i>cinnamomea</i>	14	28	„ 1927.
„ <i>cinnamomea</i> L. ¹⁾	7	14	TÄCKHOLM, 1920, 1922.
	14		„ „ PENLAND, 1923.
„ <i>cinnamomea</i> f. <i>foecundis-</i> <i>sima</i> (MÜNCH)		14	TÄCKHOLM, 1922.
„ <i>cinnamomea</i> L. var. <i>glab-</i> <i>rifolia</i> C. A. MEYER	7	14	„ „
„ <i>damascena</i>		21	HURST, 1927.
		28	„ „
„ <i>damascena</i> MILL.	14	28	TÄCKHOLM, 1920, 1922.
	14+7 ₁	35	„ „ „
„ <i>damascena</i> MILL. var. <i>trigintipetala</i> DIECK. . . .	14	28	„ „ „
„ <i>Froebelii</i> CHRIST.	7+21 ₁		HURST, 1925.
„ <i>Goethei</i> HORT.	7+7 ₁		„ „
„ <i>Hilliana</i> HURST.	14+28 ₁	56	„ „
„ <i>indica</i> L.	7	14	„ „
„ <i>indica</i>	7	14	„ 1927.
	14	28	„ „
		21	„ „
„ <i>lucida</i>	14		BLACKBURN, 1925.
„ <i>lucida</i> EHR.	14	28	TÄCKHOLM, 1920, 1922.
„ <i>macrophylla</i>	7	14	HURST, 1927.
	14	28	„ „
„ <i>macrophylla</i> LINDL. . . .	7		„ 1925 TÄCKHOLM, 1920, 1922.
„ <i>mollis</i>	7+14 ₁	28	BLACKBURN, 1925.
„ <i>mollis hesslensis</i> MATSS.			
var. <i>inversifolia</i> MATSS. . .	7+14 ₁	28	TÄCKHOLM, 1922.
„ <i>mollis hesslensis</i> MATSS.			
var. <i>correctillidens</i> MATSS.	7+14 ₁	28	„ „
„ <i>Moyesii</i> HEMS. & WILS. . .	21	42	HURST, 1925.
		42	TÄCKHOLM, 1920, 1922.
„ <i>Moyesii</i> f. <i>rosa</i> REHDER & WILSON		28	„ „ „
„ <i>pimpinellifolia</i>	14	28	BLACKBURN, 1925.

¹⁾ In 1920 TÄCKHOLM had reported that certain varieties of *Cinnamomeae* were tetraploid, while others were diploid.

ROSACEAE (continued)	n	2n	
<i>Rosa</i> (continued)			
<i>Rosa pimpinellifolia</i> L. (various forms)	14	28	TÄCKHOLM, 1920, 1922; BLACKBURN & HARRISON, 1921; PENLAND, 1923.
„ <i>pimpinellifolia</i> var. <i>spinossissima</i>	14		BLACKBURN & HARRISON, 1921
„ <i>pimpinellifolia</i> L. var. <i>Ripartii</i> (DEGL.) R. KELLER	14	28	TÄCKHOLM, 1922.
„ <i>pimpinellifolia</i> L. var. <i>hispida</i> (SIMS) KOEHNE		28	„ „
„ <i>pomifera</i> HEUM.	7+14 ₁		HURST, 1925.
„ <i>pomifera</i> HEUM. <i>recondita</i> R. KELLER	7+14 ₁	28	TÄCKHOLM, 1922.
„ <i>pomifera Grenieri</i> R. KELLER	7+14 ₁	28	„ „
„ <i>pratincola</i>	14		BLACKBURN, 1925.
„ <i>provincialis</i> AIT.		21	HURST, 1925.
„ <i>rubiginosa</i> L.	8		STRASBURGER, 1904b.
	7+21 ₁		TÄCKHOLM, 1920, 1922.
„ <i>rubiginosa</i> var. <i>comosa</i> RIP.	7+21 ₁		BLACKBURN & HARRISON, 1921
„ <i>rubiginosa</i> var. <i>comosa</i> (RIP.) DUN. (H.B.R.rub.)	7+21 ₁	35	TÄCKHOLM, 1922.
„ <i>rubiginosa</i> var. <i>apricorum</i> RIP.	7+21 ₁		BLACKBURN & HARRISON, 1921
„ <i>rugosa</i> THUNB.	7		HURST, 1925; TÄCKHOLM, 1920, BLACKBURN & HARRISON 1921.
„ <i>rugosa</i> THUNB. a <i>ferox</i> (LAWR.) C. A. MEYER .	7	14	TÄCKHOLM, 1922.
„ <i>rugosa</i> THUNB. B. <i>Kamtschatica</i> (VENT.) CRÉP. .		14	„ „
„ <i>rugosa</i> THUNB. y <i>chamissoniana</i> C. A. MEYER .		14	„ „
„ <i>semperflorens</i> CURT.	7+7 ₁		HURST, 1925.
„ <i>setigera</i>	7		BLACKBURN, 1925.
„ <i>virginiana</i>	21		HURST, 1927.
	28		„ „
„ <i>Willmottiae</i> HEMSL.	7		„ „
		14	TÄCKHOLM, 1920, 1922.

HURST (1925) without stating the chromosome numbers for the individual species gave the following determinations:

Diploid Species: *Rosa Brunonii* LINDL.; *R. fraxinifolia* LINDL.; *R. Hugonis*

ROSACEAE (continued)

n

2n

HURST (1928) LIST (continued)

HEMSL.; *R. moschata* MILL.; *R. multiflora* THUNB.; *R. pisocarpa* A. GRAY; and *R. sericea* LINDL.

Triploid Species: *Rosa damascena* L. (from Holland and France).

Tetraploid Species: *Rosa altaica* WILID.; *R. centifolia* L.; *R. mollis* SM.; *R. odorata* SWT. var. *Gloire de Dijon*; and *R. spinosissima* L.

Pentaploid Species: *Rosa damascena* L. (from Persia); and *R. tomentosa* SM.

Hexaploid Species: *Rosa alba* L.; *R. glutinosa* var. *leioclada* CHRIST.; *R. inodora* FRIES.; *R. Jundzilii* BESS.; *R. nutkana* PRESL.; *R. stylosa* var. *evanida* CHRIST.

Octoploid Species: *Rosa acicularis* LINDL.

HURST, in his later list (1928) confirms most of the above determinations and includes many new species. The 1928 list is as follows:

Diploid Species ($n = 7$): *Rosa abyssinica* R.Br.; *R. anemoneflora* Fortune; *R. arvensis* HUBS.; *R. Banksiae* AIT.; *R. blanda* AIT.; *R. Brunoni* LINDL.; *R. cabulica* BOISS.; *R. Carolina* L.; *R. cathayensis* REHDR. et WILS.; *R. chinensis* JACQ.; *R. cinnamomea* L.; *R. coruscans* WAITZ.; *R. corymbulosa* ROLFE.; *R. davurica* PALL.; *R. Ecae* AITCH.; *R. elegantula* ROLFE.; *R. Fendleri* CRÉP.; *R. foliolosa* NUTT.; *R. Genteliana* LÉV. et VAN.; *R. gigantea* COLL.; *R. Giraldui* CRÉP.; *R. gymnocarpa* NUTT.; *R. Helenae* REHDR. et WILS.; *R. Hugonis* HEMSL.; *R. laevigata* MICHX.; *R. Leschenaultiana* (WIGHT et ARNOTT); *R. longicuspis* BERTOL.; *R. luciae* FRANCH et ROCHEBR.; *R. macrophylla* LINDL.; *R. Maretti* LÉV.; *R. microcarpa* LINDL.; *R. moschata* HERRM.; *R. multiflora* THUNB.; *R. nipponensis* CRÉP.; *R. nitida* WILLD.; *R. omeiensis* ROLFE.; *R. persetosa* ROLFE.; *R. Phoenicia* BOISS.; *R. pisocarpa* A. GRAY; *R. Pissarti* CARR.; *R. rubrifolia* AIT.; *R. Rubus* LÉV. et VAN.; *R. rugosa* THUNB.; *R. sempervirens* L.; *R. sericea* LINDL.; *R. sertata* ROLFE.; *R. setigera* MICHX.; *R. soulieana* CRÉP.; *R. Watsoniana* CRÉP.; *R. Webbiana* WALL.; *R. Wichuriana* CRÉP.; *R. Willmottiae* HEMSL.; *R. Woodsii* LINDL.; *R. Xanthina* LINDL.

Triploid Species ($\delta n = 7$, $\phi n = 14$; $2n = 21$): Forms of *Rosa sempervirens* LEM.; *R. semperflorens* CURTIS.; *R. chinensis* JACQ.; *R. odorata* SWEET.

Tetraploid Species ($\delta n = 14$, $\phi n = 14$): *Rosa acicularis nipponensis* AUCT.; *R. adjecta* DESFGL.; *R. altaica* WILLD.; *R. ballica* ROTH.; *R. bella* REHD. et WILS.; *R. Bordereana* ROUY.; *R. carolina* L.; *R. centifolia* L.; *R. chinensis* JACQ.; *R. chusima*; *R. corymbosa* EHR.; *R. Damascena* BLACKW.; *R. Davidi* CRÉP.; *R. foetida* HERRM.; *R. gallica* L.; *R. glandulosa* BELLARDI; *R. grandiflora* LINDL.; *R. hemisphaerica* HERRM.; *R. hispida* SIMS.; *R. Hudsoniana* THORY; *R. Humilisgrandiflora* BAKER; *R. Huntii* HURST (sp. nov.); *R. inermis* MILL.; *R. johannensis* FERN.; *R. lagenaria* VILL.; *R. laxa* RETZ.; *R. lucida* EHR.; *R. Lunellii* GREENE; *R. lutea* MILL.; *R. lutescens* PURSH.; *R. macrophylla* LINDL. (em.); *R. macrophylla crasseaculeata* VILM.; *R. macrophylla Fargesii* HORT.; *R. macrophylla* var. *Korolkowi*; *R. monspeliaca* GOUAN; *R. multibracteata* HEMSL. et WILS.; *R. muscosa* MILL.; *R. myriacantha* D.C.; *R. ochroleuca* SWARTZ.; *R. palustris* MARSH.; *R. parvifolia* EHR.; *R. pendulina* L.; *R. pimpinellifolia* L.; *R. pomponia* D.C.; *R. provincialis* MILL.; *R. pumila* JACQ.; *R. punicea* MILL.; *R. pyrenaica* GOUAN; *R. Rapini* BOISS and BAL.; *R. reducta* BAKER; *R. Ripartii* DESEGL.; *R. roseo Moyessii* ALMQ.; *R. rubra* BLACKW.; *R.*

ROSACEAE (Continued)

n 2n

HURST (1928) LIST (continued)

saturata LAMM.; *R. scotica* MILL.; *R. sempervirens* L. (em); *R. setipoda* HEMSL. et WILS.; *R. spinosissima* L.; *R. suffulta* GREENE; *R. virginiana* MILL.

Irregular Tetraploid Species ($\delta n = 7$, $\varphi n = 21$): *Rosa mollis* SMITH; *R. omissa* DESEGL.; *R. pomifera* HERRM.; *R. recondita* PUGET; *R. rubrifolia* VILL.

Pentaploid Species ($\delta n = 7$; $\varphi n = 28$): *Rosa agrestis* SAVI; *R. canina* L.; *R. coriifolia* FRIES.; *R. elliptica* TAUSCH.; *R. Froebeli* CHRIST.; *R. glauca* VILL.; *R. glutinosa* SIETH. and SM.; *R. micrantha* SMITH; *R. pseudo mollis* LEY; *R. rubiginosa* L.; *R. tomentosa* SMITH.

Hexaploid Species ($\delta n = 21$; $\varphi n = 21$): *Rosa Bourgeauiana* CRÉP.; *R. Engelmanni* S. WATS.; *R. manca* GREENE; *R. Moyesii* HEMSL. and WILS.; *R. nutkana* PRESL.; *R. Savi* SCHWEIN.; *R. Wilsoni* BORR.

Irregular Hexaploid Species ($\delta n = 7$; $\varphi n = 35$): *Rosa inodora* FRIES.; *R. Jundzili* BESS.; *R. Pouzini* TRATT.

Octoploid Species ($\delta n = 28$; $\varphi n = 28$): *Rosa acicularis* LINDL.; *R. Täckholmii* HURST (sp. nov.).

<i>Rosa cinnamomea</i> × <i>R. rugosa</i>	7		BLACKBURN, 1925.
„ <i>pendulina</i> × <i>R. pimpinellifolia</i>	14	„	„
„ <i>cinnamomea</i> × <i>R. pendulina</i>	7+7 ₁	„	„
„ <i>pendulina</i> × <i>R. nutkana</i>	14+7 ₁	„	„
„ <i>tomentosa</i> × <i>R. pimpinellifolia</i> (= <i>R. Sabini</i>) .	14+7 ₁	„	„
„ <i>pimpinellifolia</i> × <i>R. tomentosa</i> (= <i>R. Wilsoni</i>)	21	42	„ „

Neurada procumbens . . . 6 MÜRBECK, 1916.

PRUNUS ¹⁾Subgenus *Amygdalus*Section *Eumygdalus* SPACH.

<i>Prunus communis</i> FRITSCH . .	8		KOBEL, 1927.
„ <i>communis</i>	8		„ 1928.
„ <i>communis</i> var. <i>persicoides</i>	8		„ „
„ <i>persica</i>	8		KNOWLTON, 1924; KOBEL, 1928.
„ <i>persica</i> STOKES . . .		16	OKABE, 1927, 1928.
„ <i>persica</i> S. et Z. varieties:			
<i>Alexis Lepere</i>	8		KOBEL, 1927.
<i>Aribaud</i>	8		„ „

¹⁾ Classification under subgenera and sections is according to C. K. SCHNEIDER (1906).

ROSACEAE (continued)

n

2n

PRUNUS (Continued)

Subgenus *Amygdalus* (cont'd)Section *Eumygdalus* SPACH. (cont'd)

<i>Ballet</i>	8		KOBEL, 1927.
<i>Belle de Vitry</i>	8		" "
<i>Bon ouvrier</i>	8	"	" "
<i>Grosse Mignonne Lâtive</i> . .	8		" "
<i>Grosse Mignonne tardive</i> . .	8		" "
<i>Incomparable Grilloux</i> . . .	8		" "
<i>Karl Ingu</i>	8		" "
<i>La France</i>	8		" "
<i>Madeleine rouge</i>	8		" "
<i>Monstreuse de Douaie</i> . . .	8		" "
<i>Noire de Montreuil</i>	8		" "
<i>President Cardinaux</i>	8		" "
<i>Siegei</i>	8		" "
<i>Sneed</i>	8		" "
<i>Teton de Venus</i>	8		" "
<i>Vilmorin</i>	8		" "
<i>Prunus persica</i> f. <i>Denjuro</i> . .	8		ASAMI, 1927.
" <i>persica</i> f. <i>Shanghai</i> . . .	8		" "
" <i>persica</i> vars.		16	DARLINGTON, 1928.
" <i>communis</i> FRITSCH × <i>P. persica</i> S. et Z. (=			
<i>Amygdalus communis</i>			
var. <i>persicoides</i> SER.).	8		" "
" <i>triloba</i> LDL.		64	" "
" <i>triloba</i>	32		KOBEL, 1928.

Section *Chamaeamygdalus* SPACH.

<i>Prunus nana</i> FOCKE		16	" "
" <i>nana</i>	8		" 1928.

Subgenus *Cerasus* JUSS.Section *Eucerasus* KOEHNE

<i>Prunus avium</i> L.		16	OKABE, 1927, 1928.
" <i>avium</i> L. varieties:			
<i>Bingkirsche</i>	8		KOBEL, 1927.
<i>Hedelfinger Riesenkirische</i> . .	8		" "
<i>Maiherzkirsche</i>	8		" "
<i>Multenzerkirsche</i>	8		" "
<i>Noire à grappes</i>	8		" "
<i>Prinzessinkirsche</i>	8		" "
<i>Regikirsche</i>	8		" "
<i>Schwarze Herzkirsche</i>	8		" "
<i>Prunus avium</i>	8		DARLINGTON, 1927b; KOBEL, 1928.

ROSACEAE (continued)

n

2n

PRUNUS (continued)

Subgenus *Cerasus* JUSS. (Cont'd)Section *Eucerasus* KOEHNE (cont'd)*Prunus avium* varieties:

<i>Bigarreau de Schrecken</i> . . .	17	CRANE, 1927; DARLINGTON, 1928.
<i>Bigarreau Kentish</i>	17	CRANE, 1927; DARLINGTON, 1928.
<i>Bigarreau Noir de Schmidt</i> .	17	CRANE, 1927; DARLINGTON, 1928.
<i>Bigarreau noir de Guben</i> . .	17	CRANE, 1927; DARLINGTON, 1928.
<i>Bigarreau Napoleon</i>	18	CRANE, 1927; DARLINGTON, 1928.
<i>Black Eagle</i>	19	CRANE, 1927; DARLINGTON, 1928.
<i>Bohemian Black</i>	18	CRANE, 1927.
<i>Bohemian Black Bigarreau</i> .	18	DARLINGTON, 1928.
<i>Decumana</i>	17 (?)	" "
<i>Early Purple Guigne</i>	17	" "
<i>Elton</i>	18	CRANE, 1927; DARLINGTON, 1928.
<i>Emperor Francis</i>	18	CRANE, 1927; DARLINGTON, 1928.
<i>Governor Wood</i>	17	DARLINGTON, 1928.
<i>Guigne d'Annonay</i>	18	CRANE, 1927; DARLINGTON, 1928.
<i>Knight's Early Black</i> . . .	19	CRANE, 1927; DARLINGTON, 1928.
<i>Noble</i>	17	CRANE, 1927; DARLINGTON, 1928.
<i>Waterloo</i>	19	CRANE, 1927; DARLINGTON, 1928.
<i>Yellow Spanish</i>	16 (?)	CRANE, 1927.
<i>Prunus cerasus</i> L. varieties:		
<i>Belle de Montreuil</i> ¹⁾	16 ²⁾	KOBEL, 1927.
<i>Griotte du Nord</i> ²⁾	16 ²⁾	" "
<i>Kaiserin Eugenie</i> ¹⁾	16 ²⁾	" "
<i>Montmorency</i> ¹⁾	16 ²⁾	" "
<i>Ostheimer Weichsel</i> ³⁾ . . .	16 ²⁾	" "
<i>Schattenmorelle</i> ³⁾	16 ²⁾	" "

¹⁾ These species belong to var. *frutescens* NEILR. = subsp. *acida* ASCHERS und GRÄB.²⁾ Irregularities in meiotic divisions were observed. Besides metaphase plates showing 16 and 16 chromosomes, there were others with 15 and 17.³⁾ These species belong to var. *typica* C. K. SCHNEIDER = subsp. *Eucerasus* ASCHER und GRÄB.

ROSACEAE (continued)	n	2n	
PRUNUS (continued)			
Subgenus <i>Cerasus</i> Juss. (cont'd)			
Section <i>Eucerasus</i> KOEHNE (cont'd)			
<i>Prunus cerasus</i>	16		DARLINGTON, 1927b.
„ <i>cerasus</i> varieties:			
<i>Empress Eugenie</i> (?)		32	CRANE, 1927; DARLINGTON, 1928.
<i>Kentish Red</i>		32	CRANE, 1927; DARLINGTON, 1928.
<i>Kentish Red</i> „A”		32	CRANE, 1927; DARLINGTON, 1928.
<i>Late Duke</i>		32	CRANE, 1927; DARLINGTON, 1928.
<i>May Duke</i>		32	CRANE, 1927; DARLINGTON, 1928.
<i>Morello</i>		32	CRANE, 1927; DARLINGTON, 1928.
<i>Reine Hortense</i>		32	CRANE, 1927; DARLINGTON, 1928.
<i>Wye Morello</i>		32	CRANE, 1927; DARLINGTON, 1928.
<i>Prunus cerasus</i> var. <i>acida</i>	< 24		KOBEL, 1928.
„ <i>cerasus</i> var. <i>typica</i>	< 24		„ „
„ <i>pumila</i> L.	8		„ 1927.
„ <i>pumila</i>	8		„ 1928.
„ sp.(?) (<i>Reine Hortense</i> ¹⁾)	16		„ 1927.
Section <i>Mahaleb</i> KOEHNE			
„ <i>Mahaleb</i> L.	8		„ 1927.
„ <i>Mahaleb</i>	8		„ 1928.
Section <i>Pseudocerasus</i>			
<i>Prunus serrulata</i> LDL.	8		„ 1927.
<i>Prunus serrulata</i>	8		„ 1928.
„ <i>serrulata</i> LINDL. varieties (<i>formae</i>)			
<i>affinis</i> MIYOSHI „ <i>Jyō-nioi</i> ”	16		OKABE, 1927, 1928.
<i>albida</i> MIYOSHI „ <i>Shirotae</i> ”	24 ²⁾		„ „ „
<i>amabilis</i> MIYOSHI „ <i>Higurashi</i> ”	16		„ 1928.
<i>angustipeta</i> MIYOSHI „ <i>Koke-Shimidzu</i> ”	16		„ 1927, 1928.

¹⁾ KOBEL states this used to be considered a hybrid between *P. avium* and *P. cerasus*.

²⁾ These varieties having $2n = 24$ showed 8 trivalent chromosomes in heterotypic division of pollen-mother-cells.

ROSACEAE (continued)	n	2n
PRUNUS (continued)		
Subgenus <i>Cerasus</i> Juss. (Con't).		
Section <i>Pseudocerasus</i> (Cont'd.)		
<i>arguta</i> MIYOSHI „Washino-o”	24 ¹⁾	OKABE, 1927, 1928.
<i>atroruba</i> MIYOSHI „Kirin” .	16	„ „ „
<i>bulbata</i> MIYOSHI „Ojyōchin”.	24 ¹⁾	„ „ „
<i>caespitosa</i> MIYOSHI „Takasz-		
go”	24	„ 1928.
<i>campanulata</i> MIYOSHI „Gijyo”	16	„ 1927, 1928.
<i>candida</i> MIYOSHI „Ariake” .	24 ¹⁾	„ „ „
<i>cataracta</i> MIYOSHI „Taki-		
nioi”	16	„ „ „
<i>classica</i> MIYOSHI „Fugenzō”	16	„ „ „
<i>communis</i> MIYOSHI „Koshio-		
yama”	16	„ „ „
<i>contorta</i> MIYOSHI „„Fukuro-		
kuji”	24 ¹⁾	„ „ „
<i>decora</i> MIYOSHI „Horinji” .	16	„ „ „
<i>dilata</i> MIYOSHI „Amayadori”	24	„ 1928.
<i>diversiflora</i> MIYOSHI „Miku-		
rumagaeshi”	16	„ „
<i>erecta</i> MIYOSHI „Amanogawa”	16	„ 1927, 1928.
<i>fasciculata</i> MIYOSHI „Ito-Ku-		
kuri”	16	„ „ „
<i>formosissima</i> MIYOSHI „Beni-		
tora-no-o”	16	„ 1928.
<i>glauca</i> MIYOSHI „Minakami”	16	„ „
<i>grandiflora</i> MIYOSHI „Man-		
getsu”	24 ¹⁾	„ 1927, 1928.
<i>homogena</i> MIYOSHI „Koko-		
noe”	16	„ „ „
<i>hosokawa-odora</i> MIYOSHI		
„Hosokawa-nivi”	16	„ „ „
<i>Komatsunagi</i> MIYOSHI „Ko-		
matsunagi”	24 ¹⁾	OKABE, 1927, 1928.
<i>luteo-virens</i> MIYOSHI „Ukon”	16	„ „ „
<i>multipetala</i> MIYOSHI „Naji-		
ma-sakura”	16	„ 1928.
<i>multiplex</i> MIYOSHI „Shiroha-		
na Mazakura”	24 ¹⁾	„ 1927, 1928.
<i>nigrescens</i> MIYOSHI „Usuzu-		
mi”	25	„ 1928.

¹⁾ These varieties having $2n = 24$ showed 8 trivalent chromosomes in heterotypic division of pollen-mother-cells.

ROSACEAE (continued)	n	2n	
PRUNUS (continued)			
Subgenus <i>Cerasus</i> Juss. (Cont'd.)			
Section <i>Pseudocerasus</i> (Cont'd.)			
<i>nivea</i> MIYOSHI „ <i>Shirayuki</i> ” .	16	OKABE, 1927, 1928.	
<i>nobilis</i> MIYOSHI „ <i>Yedo</i> ” . .	16	” ” ”	
<i>picta</i> MIYOSHI „ <i>Senriko</i> ” . .	24 ¹⁾	” ” ”	
<i>purpurascens</i> MIYOSHI „ <i>Kan-</i> <i>zan</i> ”	16	” ” ”	
<i>purpurascens</i> suf. <i>pallida</i> MI- YOSHI „ <i>Masu-yama</i> ” . . .	16	” ” ”	
<i>purpurea</i> MIYOSHI „ <i>Marusa-</i> <i>kisakura</i> ”	16	” 1928.	
<i>regularis</i> MIYOSHI „ <i>Itsuka-</i> <i>Yama</i> ”	16	” ”	
<i>rubescens</i> MIYOSHI „ <i>Arashi-</i> <i>Yama</i> ”	16	” 1928.	
<i>rubida</i> MIYOSHI „ <i>Ben-dono</i> ”.	16	” ” 1928.	
<i>similis</i> MIYOSHI „ <i>Tagui-aras-</i> <i>hi</i> ”	16	” ” ”	
<i>splendens</i> MIYOSHI „ <i>Chôshû-</i> <i>hizakura</i> ”	16	” ” ”	
<i>superba</i> MIYOSHI „ <i>Shôgetsu</i> ”		” ” ”	
<i>surugadai</i> MIYOSHI „ <i>Suraga-</i> <i>dai-nioi</i> ”	16	” 1928	
<i>tricolor</i> MIYOSHI „ <i>Gyôikô</i> ”	16	” ”	
<i>unifolia</i> MIYOSHI „ <i>Ichiyô</i> ” .	16	” ”	
Subgenus <i>Euprunus</i> C. K.			
SCHNEIDER			
Section <i>Armeniaca</i> , W. D. J.			
<i>Prunus Armeniaca</i> L. „ <i>Am-</i> <i>brosia</i> ”	16	KOBEL, 1927.	
” <i>Armeniaca</i> L. „ <i>Früher</i> <i>Moorpark</i> ”	8	” ”	
” <i>Armeniaca</i> L. „ <i>Luizet-</i> <i>Aprikose</i> ”	8	KOBEL, 1927.	
” <i>Armeniaca</i> L. „ <i>Précocé</i> <i>de Boulbon</i> ” ²⁾	8	” ”	
” <i>Armeniaca</i>	8	” ”	
” <i>Armeniaca</i> L. var. <i>Ansu</i> <i>Max</i>	16	OKABE, 1927, 1928.	

¹⁾ These varieties having $2n = 24$ showed 8 trivalent chromosomes in heterotypic division of pollen-mother-cells.

²⁾ An unknown kind from Hauser Gardeners in Wädenswil showed $n = 8$ also.

ROSACEAE (continued)		n	2n	
PRUNUS (continued)				
Subgenus <i>Eupruneus</i> C. K. SCHNEIDER. (Cont'd).				
Section <i>Prunophora</i> FIORI et PAOL				
<i>Prunus cerasifera</i>	8			DARLINGTON, 1927b; KOBEL, 1928.
„ <i>cerasifera</i> var. <i>Mariana</i>		16		CRANE, 1927, DARLINGTON, 1928.
„ <i>cerasifera</i> EHR. s. l.	„			KOBEL, 1927.
„ <i>cerasifera</i> EHR. s. l. „ <i>Myroblane</i> ”	8			„ „
„ <i>cerasifera</i> EHR. s. l. „ <i>Kirschlorne</i> ”	8			„ „
„ <i>cerasifera</i> EHR. s. l. var. <i>Pissardi</i> KOEHNE (= <i>P. Pissardi</i> CARR).	8			„ „
„ <i>Pissardi</i>	8			„ „
„ <i>cerasifera</i> EHR. s. l. var. <i>Pissardi Moseri</i>	8 ¹⁾			„ „
„ <i>Moseri</i>	8			„ 1928.
„ <i>domestica</i>		48		CRANE, 1927.
	24			DARLINGTON, 1927b.
	<24			KOBEL, 1928.
„ <i>domestica</i> s. l.	24			„ „
„ <i>domestica</i> L.	16			OKABE, 1927.
„ <i>domestica</i> L. ssp.: <i>insititia</i> (L.) POIRET var. <i>Juliana</i> L. (St. Julien pflaume)				KOBEL, 1927.
<i>insititia</i> (L.) POIRET var. <i>potaniorum</i> BOUTGNY (Katalonischer Spilling)	24			„ „
<i>insititia</i> (L.) POIRET var. <i>cearea</i> L. (Mirabelle von Metz)	24			„ „
<i>italica</i> BORKHAUSEN var. <i>Claudiana</i> POIRET (g.g. Reineclaude)	24			„ „
<i>italica</i> BORKHAUSEN var. <i>ovoides</i> MARTENS (Pfirsichpflaume)	24			„ „
<i>italica</i> BORKHAUSEN var. <i>ovoides</i> MARTENS (Schöne von Lowen)	24			„ „

¹⁾ Irregular meiotic divisions were observed.

ROSACEAE (continued)	n	2n
PRUNUS (continued)		
Subgenus <i>Euprunus</i> C. K. SCHNEIDER. (Cont'd).		
Section <i>Prunophora</i> FIORI et PAOL (Cont'd).		
<i>italica</i> BORKHAUSEN var.		
<i>ovoides</i> MARTENS (rote Herrenpflaume).	24	KOBEL, 1927.
<i>oeconomica</i> BORKHAUSEN var.		
<i>mamillaris</i> SCHÜBELER et MARTENS (Bühler Frühzwetschge).	24 ¹⁾	" "
<i>oeconomica</i> BORKHAUSEN var.		
<i>mamillaris</i> SCHÜBELER et MARTENS (Grossherzog) . .	24	" "
<i>oeconomica</i> BORKHAUSEN var.		
<i>oxycarpa</i> (BECHSTEIN) (Jefferson)	24	" "
<i>oeconomica</i> BORKHAUSEN var.		
<i>oxycarpa</i> (BECHSTEIN) (Washington).	24	" "
<i>oeconomica</i> BORKHAUSEN var.		
<i>pruneauliana</i> SER. (Deutsche Hauszwetschge). . .	24	" "
<i>oeconomica</i> BORKHAUSEN var. <i>pruneauliana</i> SER. (Italienische Hauszwetschge).	24	" "
<i>oeconomica</i> BORKHAUSEN var. <i>subrotunda</i> (BECHSTEIN) (Kirkespflaume). .	24	" "
<i>Prunus nigra</i> AIT.	8	" "
" <i>nigra</i>	8	" 1928.
" <i>spinosa</i>	16	DARLINGTON, 1927b; KOBEL, 1928.
		32
		32 CRANE, 1927.
" <i>spinosa</i> L. ²⁾	16 ³⁾	KOBEL, 1927.
" <i>spinosa</i> seedling . . .		32 DARLINGTON, 1928.
" <i>triflora</i> ROXB.	8	DARLINGTON, 1927b; KOBEL, 1927.
		16 OKABE, 1927, 1928.
Subgenus <i>Padus</i> BORKH.		
<i>Prunus Padus</i> L. (= <i>P. racemosa</i> LAM.)	16	KOBEL, 1927.

¹⁾ In this form only 23 chromosomes were frequently counted.

²⁾ Four different examples were examined.

³⁾ Irregularities in division occurred.

ROSACEAE (continued)	n	2n	
PRUNUS (continued)			
Subgenus <i>Padus</i> BORKH. (Cont'd).			
<i>Prunus Padus</i>	16		KOBEL, 1928.
„ <i>Padus</i> L.		32	OKABE, 1927, 1928.
„ <i>serotina</i> AGARDH. . . .		32	KOBEL, 1927.
„ <i>serotina</i>	16		„ „
Subgenus <i>Laurocerasus</i> ROEMER			
<i>Prunus Laurocerasus</i> ROEMER			
var. <i>macrophylla</i> S. et			
Z.		72	KOBEL, 1927.
„ <i>Laurocerasus</i> ROEMER			
var. <i>schipkaensis</i>			
SPATH	ca. 72		„ „
„ <i>Laurocerasus</i>	72		„ 1928.
Section <i>Prunophora</i> NECK ¹⁾ .			
<i>Prunus Mume</i> S. et Z.	16		OKABE, 1927, 1928.
„ <i>Mume</i> var. <i>microcarpa</i>			
MAKINO	16		„ „ „
„ <i>Mume</i> (a race). . . .	24		„ 1928.
Section <i>Amygdalus</i> TOURN.			
<i>Prunus amygdalus</i> STOKES . .	16		OKABE, 1927, 1928.
„ <i>amygdalus</i> vars. . . .	16		DARLINGTON, 1928
Section <i>Cerasus</i> TOURN.			
<i>Prunus cerasoides</i> DON. var.			
<i>campanulata</i> KOIDZ. . .	16		OKABE, 1927, 1928.
„ <i>crasipes</i> KOIDZ. . . .	16		„ „ „
„ <i>incisa</i> THG.	16		„ „ „
„ <i>Itosakura</i> SIEB. . . .	16		„ „ „
„ <i>Itosakura</i> var. <i>pendula</i>			
KOIDZ.	16		„ „
„ <i>Itosakura</i> (a race). . .	24		„ 1928.
„ <i>japonica</i> THG.	16		„ 1927, 1928.
„ <i>Kurilensis</i> MIYABE . .	16		„ „
„ <i>mutabilis</i> MYOSHI var.			
(formae):			
<i>brevipedunculata</i> MIYOSHI			
(<i>Kojima-sakura</i>).	16		„ 1928.
<i>dilucularis</i> MIYOSHI (<i>Hino-</i>			
<i>dono-sakura</i>)	16		„ „
<i>formosa</i> MIYOSHI (<i>Maruko-</i>			
<i>sakura</i>)	16		„ „
<i>hiemalis</i> MIYOSHI (<i>Jyûroku-</i>			
<i>nichi-sakura</i>)	16		„ „

¹⁾ The following arrangement is from OKABE (1928).

ROSACEAE (continued)	n	2n	
PRUNUS (continued)			
Subgenus <i>Laurocerasus</i> ROEMER (Cont'd).			
Section <i>Cerasus</i> TOURN. (Cont'd).			
<i>Katsumi</i> MIYOSHI (<i>Katsumi-sakura</i>)	16	OKABE, 1928.	
<i>longipedunculata</i> MIYOSHI (<i>Kasa-sakura</i>).	16	" "	
<i>musashiensis</i> MIYOSHI (<i>musashino-sakura</i>)	16	" "	
<i>nebrosa</i> MIYOSHI (<i>Kasumi-sakura</i>)	16	" "	
<i>regalis</i> MIYOSHI (<i>Kwao-sakura</i>)	16	" "	
<i>rotunda</i> MIYOSHI (<i>Midzuho-sakura</i>)	16	" "	
<i>rubriflora</i> MIYOSHI (<i>Komatsu-sakura</i>)	16	" "	
<i>speciosa</i> MIYOSHI (<i>Jurokunchi-sakura</i>)	16	" 1927.	
<i>speciosa</i> MIYOSHI (<i>Oshima-sakura</i>)	16	" "	
<i>Sumizomo-odora</i> MIYOSHI (<i>Sumizome-noi</i>)	16	" 1928.	
<i>tanashiensis</i> MIYOSHI (<i>Tanashi-sakura</i>)	16	" "	
<i>venusta</i> MIYOSHI (<i>Fuhima-sakura</i>)	16	" "	
<i>Prunus pseudo-cerasus</i> LINDL.	32	" "	
" <i>sachalinensis</i> MIYOSHI	16	" 1927, 1928.	
" <i>subhirtella</i> (Miq.) Koidz.	16	" " "	
" <i>tomentosa</i> THG.	16	" " "	
" <i>yedoensis</i> MATSUM.	16	" " "	
" <i>yedoensis</i>	16	ISHIKAWA, 1916.	
Section <i>Padus</i> MÖNCH			
<i>Prunus Grayana</i> MAXIM.	32	OKABE, 1927, 1928.	
" <i>Ssiori</i> F. SCHMIDT	32	" " "	
Section(?) ¹⁾			
<i>Prunus acida</i>	16	DARLINGTON, 1927b.	
" <i>acida multicaarpa</i>	32	" 1928.	
" <i>acida salicifolia</i>	32	" "	
" <i>americana</i> „Iron Clad”	10	DORSEY, M. 1919.	

¹⁾ The following species were not classified under sections.

ROSACEAE (continued)	n	2n	
PRUNUS (continued)			
<i>Prunus americana</i> „Stoddard” .	10		DORSEY, M. 1919.
„ <i>americana</i> mollis „Wolf		20	„ „ „
„ <i>avium nana</i>		24	DARLINGTON, 1928.
„ <i>communis</i>	8		KOBEL, 1928.
„ <i>communis</i> var. <i>persicoi-</i>			
des	8		„ „
„ <i>fruticosa</i>	16		DARLINGTON, 1928.
„ <i>hortulana mineri</i> „Sur-			
prise”		20	DORSEY, M. 1919.
„ <i>insititia</i>		48	CRANE, 1927.
	24		DARLINGTON, 1928.
„ <i>insititia</i> var. „King of			
the Damsons” (selfed			
seedling)		48	DARLINGTON, 1928.
„ <i>pennsylvanica</i>		20	DORSEY, M. 1919.
„ <i>Americana</i> × <i>triflora</i>			
„Stella”	10		„ „ „
„ <i>Besseyi</i> × (<i>P. Munso-</i>			
<i>niana</i> × <i>triflora</i>)			
„Opata”	ca. 10		„ „ „
„ <i>cerasifera</i> × <i>P. domes-</i>			
<i>tica</i>	16		DARLINGTON, 1927b.
„ <i>domestica</i> × <i>P. cerasifera</i> .		32	CRANE, 1927.
„ <i>domestica</i> var. <i>Jeffer-</i>			
<i>son</i> × <i>P. cerasifera</i>			
var. „Myrobalan Red”			
Seedling		32	DARLINGTON, 1928.
„ <i>insititia</i> × <i>P. spinosa</i> .		40	CRANE, 1927.
„ <i>insititia</i> var. „King of			
the Damsons” × <i>P.</i>			
<i>spinosa</i> seedling. . .		40	DARLINGTON, 1928.
„ <i>persica</i> × <i>P. amygdalus</i>			
seedling		16	„ „
„ <i>triflora</i> × <i>P. America-</i>			
<i>na mollis</i> , „Minnesota			
# 12”.	10		DORSEY, M. 1919.
„ <i>triflora</i> × <i>P. persica</i>			
seedling		16	DARLINGTON, 1928.
„ <i>triflora</i> var. „Shiro” ×			
<i>P. cerasifera</i> var. „Pis-			
<i>sardii</i> ” seedling” . .		16	„ „
„ <i>triflora</i> × <i>P. Simonii</i>			
(?) var. „Maynard” .		16	„ „

ROSACEAE (continued)

n

2n

PRUNUS (continued)

Prunus Seedlings:

<i>Big. Napoleon</i> × <i>Big. de Schrecken</i>	16, 18	CRANE, 1927.
<i>Big. Napoleon</i> × <i>Big. de Schrecken</i> (tall)	18	DARLINGTON, 1928.
<i>Big. Napoleon</i> × <i>Big. de Schrecken</i> (dwarf)	16	" "
<i>Big. de Schrecken</i> × <i>Black Tartarian B.</i>	16	CRANE, 1927; DARLINGTON, 1928.
<i>Big. Kentish</i> × <i>Morello.</i>	24, 32	CRANE, 1927.
<i>Kentish Bigarreau</i> × <i>Morello</i> (seedling- ¹)	32	DARLINGTON, 1928.
<i>Kentish Bigarreau</i> × <i>Morello</i> (seedling- ²)	24	" "
<i>Bohemian Black</i> × <i>Kentish Red</i>	26	CRANE, 1927.
<i>Bohemian Black Bigarreau</i> × <i>Kentish Red „A”</i>	26	DARLINGTON, 1928.
<i>Bohemian Black Bigarreau</i> × <i>May Duke</i>	24, 25 ¹)	" "
<i>Bohemian Black Bigarreau</i> × <i>Reine Hortense</i>	24	" "
<i>Elton</i> × <i>Wye Morello</i>	24, 26	CRANE, 1927.
	26(?)	DARLINGTON, 1928.
<i>Emperor Francis</i> × <i>Bigarreau Frogmore</i> ²)	32	CRANE, 1927.
<i>Emperor Francis</i> × <i>Governor Wood</i> (tall)	18	DARLINGTON, 1928.
<i>Emperor Francis</i> × <i>Governor Wood</i> (dwarf)	16	" "
<i>Empress Eugenie</i> (selfed)	32	CRANE, 1927; DARLINGTON, 1928.
<i>Governor Wood</i> × <i>Black Tartarian B.</i>	16	CRANE, 1927.
<i>Governor Wood</i> × <i>Black Tartarian</i>	16	DARLINGTON, 1928.
<i>Guigne de Winkler</i> ³) × <i>May Duke</i>	32	" "

¹) Only one seedling of this cross had 25 chromosomes, while four had 24 chromosomes.

²) For *Bigarreau Frogmore* $2n = (? 16-19)$.

³) For *Guignede Winkler* $2n = (? 16-19)$.

ROSACFAE (continued)	n	2n	
PRUNUS (continued)			
<i>Kentish Red „A”</i> (selfed) . . .		32	CRANE, 1927, DARLINGTON, 1928.
<i>May Duke</i> × <i>Yellow Spnish</i>		19	CRANE, 1927; DARLINGTON, 1928.
<i>Morello</i> × <i>May Duke</i> . . .		32	CRANE, 1927, DARLINGTON, 1928.
<i>Waterloo</i> × <i>Black Eagle</i> . . .		16, 19	CRANE, 1927. DARLINGTON, 1928.
<i>Wye Morello</i> (selfed) . . .		32	CRANE, 1927; DARLINGTON, 1928.
<i>Wye Morello</i> × <i>Napoleon</i> . .		23, 24	CRANE, 1927.
		23	DARLINGTON, 1928.
<i>Cerisier „Montmorency Pleureux”</i>	16		” ”
<i>Mahaleb Seedling</i>		16	” ”
<i>Seedling C 12</i> ¹⁾		19	” ”
<i>Osmaronia cerasiformis</i> GREENE (= <i>Nuttallia cerasiformis</i> TORR. et GR.) . .	6		KOBEL, 1927.
LEGUMINOSAE			
<i>Cassia fistula</i>	12		TISCHLER, 1921–22.
” <i>tomentosa</i> L.	12		HUS, 1904.
	12	24	SAXTON, 1907.
<i>Lupinus albus</i>		ca. 40	DE SMET, 1914.
” <i>luteus</i>		44–46	HEITZ, 1926.
<i>Cytisus Adami</i> (= <i>Laburnum Adami</i>).		48	ISHIKAWA, 1916.
	24	48	STRASBURGER, 1905b, 1907.
” <i>Laburnum</i> (= <i>Laburnum vulgare</i>)	24	48	STRASBURGER, 1905b, 1907.
” <i>nigricans</i> L.	24		DE VILMORIN & SIMONET, 1927b.
” <i>purpureus</i>	24	48	STRASBURGER, 1905b, 1907.
MEDICAGO ²⁾			
Section <i>Falcago</i>			
<i>Medicago sativa</i>		32	GHIMPU, 1928.
Section <i>Lupularia</i>			
<i>Medicago lupulina</i>		16	GHIMPU, 1928.

¹⁾ This seedling was distinguishable from all the edible varieties studied, because of the exceptional irregularity of its divisions.

²⁾ Classification under sections is according to ENGLER & PRANTL.

LEGUMINOSAE (continued)	n	2n	
Section Spirocarpos			
<i>Medicago disciformis</i>		16	GHIMPU, 1928.
„ <i>Echinus</i>		16	„ „
„ <i>Fenoreana</i>		16	„ „
„ <i>Helix</i>		16	„ „
„ <i>maculata</i>		16	„ „
„ <i>minima</i>		16	„ „
„ <i>orbicularis</i>		16	„ „
„ <i>rigidula</i>		16	„ „
„ <i>scutellata</i>		16	„ „
„ <i>sphaerocarpa</i>		16	„ „
„ <i>tornata</i>		16	„ „
„ <i>truncatula</i>		16	„ „
<i>Melilotus alba</i> DESR.	8		CASTETTER, 1923.
„ <i>alba</i>	8		„ 1925.
TRIFOLIUM ¹⁾			
Section Tridentatae			
<i>Trifolium obtusiflorum</i> HOOK (2 strains)		16	WEXELSEN, 1928
„ <i>obtusiflorum</i> var <i>ma-</i> <i>jus</i> (<i>T. majus</i> GREENE) NE)		16	„ „
Section Variegatae			
<i>Trifolium variegatum</i> NUTT. . .		16	WEXELSEN, 1928.
„ <i>wormskjoldii</i> LEHM. . .		48(?)	„ „
Section Cyathiferae			
„ <i>microcephalum</i> PURSH.		16	„ „
Section Vesiculeae			
<i>Trifolium furcatum</i> LINDL. . .		16	„ „
„ <i>furcatum</i> var. <i>vires-</i> <i>cens</i> (<i>T. virescens</i> GREENE).		16	„ „
Section Macraeae			
<i>Trifolium albopurpureum</i> . T. and G.		16	„ „
„ <i>dichotomum</i> H. and A.		32	„ „
Section Longifoliae			
<i>Trifolium reflexum</i> L.		16	WEXELSEN, 1928.
Section Ciliateae			
<i>Trifolium ciliolatum</i> BENTH. (<i>T.</i> <i>ciliatum</i> NUTT.)		16	„ „

¹⁾ Classification under sections is according to McDWOMOTT (1910).

LEGUMINOSAE (continued)	n	2n
Section <i>Eumoria</i>		
<i>Trifolium repens</i> var. <i>sylvestre</i> (<i>hollandicum</i>)		32 ¹⁾ ERITH, 1924.
" <i>repens</i> var. <i>sylvestre</i> (<i>giganteum</i>)		32 ¹⁾ " "
<i>Wistaria brachybotrys</i>	8	JIMBO, 1927.
" <i>floribunda</i>	3	" "
" <i>floribunda</i> Dc. var. <i>alba</i> REHDER & WILSON ²⁾	8	ROSCOE, 1927a
" <i>floribunda</i> Dc. var. <i>Macrobotrys</i> REH- DER & WILSON ³⁾	8	" "
" <i>floribunda</i> Dc. var. <i>rosea</i> REHDER & WILSON ⁴⁾	8	" "
<i>Wistaria frutescens</i> (L.) POIR. var. <i>alba</i> REHDER & WILSON	8	ROSCOE, 1927a.
" <i>macrostachya</i> NUTT. ⁴⁾	8	" "
" <i>sinensis</i> SWEET ⁵⁾	8	" "
" <i>venusta</i> REHDER & WILSON ⁶⁾	8	" "
<i>Colutea arborescens</i>		10-18 NĚMEC, 1910.
<i>Cicer arietinum</i> L.		14 ⁷⁾ DOMBROWSKY-SLUDSKY, 1927.
VICIA ⁸⁾		
Section I		
<i>Vicia Faba</i>	12	NĚMEC ⁹⁾ , 1904, 1910; FRANCK, 1911; STRASBURGER, 1911; LUNDEGARDH, 1914a; SHARP 1914; VAN REGEMORTER, 1926-27. ca.12-15 LUNDEGARDH, 1910, 1912. 6 12 SAKAMURA, 1915, 1920.

¹⁾ In previous list, GAISER (1926), 16 was incorrectly given in the diploid column, though foot-note stated there were 32 diploid chromosomes.

²⁾ Meiotic divisions were irregular.

³⁾ Meiotic divisions were regular.

⁴⁾ Not sufficient material was available „to furnish a clear idea of the progress of the divisions.

⁵⁾ The chromosomes showed tardiness in forming the metaphase plate but usually arrived at the poles in time to form normal pollen tetrads.

⁶⁾ Polyspory was frequent in this species.

⁷⁾ One pair of chromosomes had „acolytes” (satellites).

⁸⁾ Classification under Sections is according to ASCHERSON and GRAEBNER (1906-1910).

⁹⁾ In root-tips treated with chloral hydrate syndiploid nuclei with 24 chromosomes were found.

LEGUMINOSAE (continued)	n	2n	
Vicia (continued)			
<i>Vicia Faba</i> L.		12	HOROVITZ, 1926, SCHWESHNIKOWA, 1927.
Section II			
Subsection I			
Group Ervum			
<i>Vicia disperma</i> DC.		14	NIKOLAJEWA (given by Schweshnikowa, 1927).
„ <i>Ervilia</i> WILLD.		14	NIKOLAJEWA (given by Schweshnikowa, 1927); Schweshnikowa, 1927.
„ <i>hirsuta</i> S. E. GRAY		14	NIKOLAJEWA (given by Schweshnikowa, 1927); Schweshnikowa, 1927.
„ <i>monantha</i> DESF.		14	NIKOLAJEWA (given by Schweshnikowa, 1927); Schweshnikowa, 1927.
Group Cracca			
Subgroup Vicilla			
<i>Vicia orobus</i> DC.		12	SCHWESHNIKOWA, 1927.
„ <i>pseudorobus</i>		12	SAKAMURA, 1920.
„ <i>silvatica</i> L.		14	SCHWESHNIKOWA, 1927.
„ <i>unijuga</i>		24	SAKAMURA 1916 (given by Ishikawa, 1916).
„ <i>unijuga</i> A. BR.	12	24	SAKAMURA, 1920.
		12	SCHWESHNIKOWA, 1927.
Subgroup Eucracca			
<i>Vicia amocna</i> FISCH		24	„ „
„ <i>atropurpurea</i>		14	SAKAMURA, 1920.
„ <i>atropurpurea</i> DESF. . . .		14	SCHWESHNIKOWA, 1927.
„ <i>cracca</i> L.	6	12	SAKAMURA, 1914, 1920.
		12 ¹⁾ & 28	SCHWESHNIKOWA, 1927.
		12 ²⁾ , 14,	
		28 ³⁾	„ 1928.
„ <i>dasyrarpa</i> TEN.		14	NIKOLAJEWA (given by Schweshnikowa, 1927; Schweshnikowa, 1927).
„ <i>picta</i> FISCH. u. MEY. . .		14	SCHWESHNIKOWA, 1927.
„ <i>pseudo-cracca</i>		14	SAKAMURA, 1920.

¹⁾ Of 10 samples of *V. cracca* from different localities in Germany and Russia, only one showed 12 chromosomes.

²⁾ Of 20 plants with 12 chromosomes, only 3 over-wintered and these were chlorotic and slow to bloom.

³⁾ The tetraploid form had only one pair of satellites, whereas the diploid had two pairs.

LEGUMINOSAE (continued)	n	2n	
Vicia (continued)			
Group Cracca (continued)			
<i>Vicia pseudo-cracca</i> BERTOL.	14		SCHWESHNIKOWA, 1927.
„ <i>tenuifolia</i> ROTH.	24		„ „
„ <i>villosa</i> ROTH.	14		„ „
Subsection II. Euvicia			
<i>Vicia angustifolia</i> L.	12		NIKOLAJEWA (given by SCHWESHNIKOWA, 1927); SCHWESHNIKOWA, 1927.
„ <i>angustifolia</i> ¹⁾	12		SCHWESHNIKOWA, 1928.
„ <i>amphiocarpa</i> (= <i>V. angustifolia variifolia</i> , <i>V. lathyroides</i>)	14		„ „
„ <i>bithynica</i> L.	14		NIKOLAJEWA (given by SCHWESHNIKOWA, 1927); SCHWESHNIKOWA, 1927.
„ <i>grandiflora</i> SCOP.	14		SCHWESHNIKOWA, 1927.
„ <i>hybrida</i> L.	12		SCHWESHNIKOWA, 1927.
„ <i>lutea</i> L.	14		„ „
„ <i>macrocarpa</i> MOR.	12		„ „
„ <i>narbonensis</i> L.	14		„ „
„ <i>pannonica</i> CRANTZ.	12		„ „
„ <i>peregrina</i> L.	14		„ „
„ <i>sativa</i>	12		(SAKAMURA) given by ISHIKAWA, 1916.
	6	12	SAKAMURA, 1920, BLEIER, 1928a.
„ <i>sativa</i> L.	12		SCHWESHNIKOWA, 1927.
„ <i>sepium</i> L.	14		(NIKOLAJEWA) given by SCHWESHNIKOWA, 1927.
„ <i>serratifolia</i> JACQ.	14		SCHWESHNIKOWA, 1927.
Section (?)			
<i>Vicia gracilis</i> LOIS.	14		„ „
„ <i>tetrasperma</i> MOENCH	14		„ „
<i>Lens esculenta</i>	14		SAKAMURA, 1920; HEITZ, 1926.
„ <i>esculenta</i> MOENCH	14		BLEIER, 1928a.
„ <i>esculenta</i> × <i>Vicia sativa</i>	6	12	„ „
<i>Lathyrus latifolius</i> L.	7	14	WINGE, 1919.
„ <i>odoratus</i>	7		LATTER, 1926; PUNNETT, 1927.
„ <i>odoratus</i> L.	7	14	WINGE, 1919; MAEDA, 1928.
„ <i>vernus</i>	14		SAKAMURA, 1920.

¹⁾ A typical form is cytologically distinguished from a larger form by the elongated arm of the „A” chromosome of the latter.

LEGUMINOSAE (continued)		n	2n	
<i>Pisum sativum</i>			14	NĚMEC, 1903a ¹⁾ , b, 1904; KEMP, 1910 ¹⁾ ; (SAKAMURA, 1916) given by ISHIKAWA, 1916; SAKAMURA, 1920; HEITZ ²⁾ 1926; DOMBROWSKY -SLUDSKY ³⁾ ; 1927.
		7		STRASBURGER ¹⁾ 1907; BATE- TESON & PELLEW, 1920; DE WINTON, 1928.
		7	14	STRASBURGER ¹⁾ , 1911.
„ <i>sativum</i> „Debarbieux”		7		CANNON, 1903b.
„ <i>sativum</i> „Fillbasket”		7		„ „
„ <i>sativum</i> „Pois turc”			14	WELLENSIEK, 1925a, b.
„ <i>sativum</i> „Chatenay Pois”			14	„ „
„ <i>sativum</i> „Serpette”		7		CANNON, 1903b.
„ <i>sativum</i> race „Swaleuf”				
(No. 27 original Soloerbse)			14 ⁴⁾	DOMBROWSKAJA, 1924.
„ <i>sativum</i> mutant <i>fasciata</i>		7		WINGE, 1925.
„ <i>sativum</i> (rogue type)		7		BATESON & PELLEW, 1920; WINGE, 1920.
„ <i>sativum</i> „Express” × „Serpette”		7	14	CANNON, 1903b.
„ <i>sativum</i> „Fillbasket” × „Debarbieux”		7	14	„ „
„ (diverse forms)			14	GRÉGOIRE, 1912.
<i>Soja hispida</i> (probably = <i>Gly-</i> <i>cine soja</i>)			20	KARPECHENKO, 1925.
<i>Glycine Soja</i> (Akasaya)			38	YAMAHA & SINOTO, 1925.
<i>Phaseolus multiflorus</i>		12		KLEINMAN, 1923.
✓ <i>Phaseolus multiflorus</i> WILLD.			22	KARPECHENKO, 1925.
„ <i>radiatus</i> L. var. <i>Au-</i> <i>rea</i> PRAIN „Shona- <i>gon</i> ”			22	KATAYAMA, 1928.
„ <i>radiatus</i> L. var. <i>fle-</i> <i>xuosus</i> MATSUM			22	„ „
„ <i>vulgaris</i>			22	WEINSTEIN, 1926.
„ <i>vulgaris</i> L.			22	KARPECHENKO, 1925.

¹⁾ These investigators found syndiploid nuclei ($2n = 23$) in cells of the root-tips after treating with chloral hydrate.

²⁾ HEITZ found the same number in both short and tall forms.

³⁾ The investigator found that one pair of chromosomes had „acolytes” (satellites).

⁴⁾ Two pairs of chromosomes possessed „acolytes” (satellites). Sometimes 16 chromosomes or a syndiploid number were found.

LEGUMINOSAE (continued)	n	2n
<i>Phaseolus</i> (continued)		
<i>Phaseolus vulgaris</i> × <i>P. multiflorus</i>		22 ¹⁾ KARPECHENKO, 1925.
<i>Dolichos multiflorus</i>		24 NĚMEC, 1910.

GERANIALES

GERANIACEAE

<i>Geranium pratense</i> L.	12	TJEBBES, 1928.
" <i>pyrenaicum</i>		21, 22-24 HEITZ, 1926.
" <i>sylvaticum</i> L.	12	TJEBBES, 1928.
" spec. cult. hort.		18 HEITZ, 1926.
<i>Erodium cicutarium</i>	36-(38)	" "

PELARGONIUM ²⁾Section *Dibrachya*

<i>Pelargonium peltatum</i> AIT. var.		
<i>scutatum</i> HAV.	18	36 TAKAGI, 1928b.

Section *Ciconium**Pelargonium hortorum* class.:

<i>Kinsekai</i>	9	18	"	"
<i>Manazuru</i>		18	"	"
<i>Kakuremino</i>		18	"	"
<i>Kirin</i>		18	"	"
<i>Lady Thomson</i>		18	"	"
<i>Shirataka</i>		18	"	"
<i>Pelargonium inquinans</i> AIT.	9	18	"	"
" <i>zonale</i> WILLD.				
(<i>Koshinoyuki</i>)	18 ³⁾	36 ⁴⁾	"	"

Section *Cortusina*

<i>Pelargonium odoratissimum</i> AIT.	8	16	"	"
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Section *Pelargonium*

<i>Pelargonium denticulatum</i> JACQ.		90	"	"
" <i>domesticum</i> class. ca. 27 ⁵⁾		45	"	"
" <i>glutinosum</i> L'HER.		90	"	"
" <i>gravecolens</i> L'HER.	45	90	"	"
" <i>quercifolium</i> AIT.		45	"	"
" <i>radula</i> L'HER. . . ca. 41 ⁶⁾		81	"	"
" <i>tomentosum</i> JACQ.		45	"	"

¹⁾ Evidently, univalent chromosomes are absent in this almost sterile hybrid but sometimes a pair of gemini lie apart on the equatorial plate.

²⁾ Classification under Sections is according to ENGLER & PRANTL.

³⁾ In midwinter non-conjunction occurred (36 univalents) and gave diads instead of tetrads.

⁴⁾ A few cells showed 72 chromosomes. There was no variation in the albino branches.

⁵⁾ Some of these chromosomes were univalents. In the homeotypic nuclear plates 22 and 23 were the most common numbers, though they varied from 20 to 25.

⁶⁾ Some of these chromosomes appeared to be univalents.

OXALIDACEAE

	n	2n	
<i>Oxalis acetosella</i>		22-24	HEITZ, 1927b. ¹⁾
" <i>adenophylla</i>		28	" "
" <i>articulata</i>		14	" "
" <i>articulata</i> var. <i>hirsuta</i> .		14	" "
" <i>asinina</i>		(28)	" "
" <i>brasiliensis</i>		14	" "
" <i>bupleurifolia</i>		10	" "
" <i>caprina</i>		(20)	" "
" <i>carnosa</i>		14	" "
" <i>consolida</i>		14	" "
" <i>crenata</i>		14	" "
" <i>Deppei</i>		14	" "
" <i>Drummondii</i>		14-16	" "
" <i>esculenta</i>		14	" "
" <i>incarnata</i>		14	" "
" <i>lasianдра</i>		28-(32)	" "
" <i>Ortgiesi</i>		14	" "
" <i>pallescens</i>		14-16	" "
" <i>pentaphylla</i>		28-30	" "
" <i>purpurata</i>		(26)-28	" "
" <i>purpurata</i> var. <i>Boviei</i> .		28	" "
" <i>rhombifolia</i>		> 80	" "
" <i>rosea</i>		(14)	" "
" <i>rubella</i>		ca. 28	" "
" <i>rubra</i>		(42)	" "
" <i>Smithiana</i>		(14)	" "
" <i>tenuifolia</i>		ca. 28	" "
" <i>truncatula</i>		(42)	" "
" <i>umbrosa</i>		14	" "
" <i>versicolor</i>		14	" "
" <i>vespertilionis</i>		14	" "
" <i>vinata</i>		(14)	" "
" <i>violacea</i>		ca. 28	" "
" <i>spec.</i>		ca. 42	" "

TROPAEOLACEAE

<i>Tropaeolum canariense</i>		26-30	" "
" <i>hobbianum</i>		ca. 28	" "
" <i>majus</i> L.	14		SUGIURA, 1925a.
" <i>majus</i>	14		WINGE, 1925; BOLENBAUGH, 1928.
		27-28	HEITZ, 1926.

¹⁾ Though HEITZ (1927b) gives the haploid numbers as half of these given diploid numbers, I have chosen to give these since his figures are all of somatic cells showing the diploid chromosome sets.

TROPAEOLACEAE (continued)

<i>Tropaeolum</i> (continued)	n	2n	
<i>Tropaeolum minus</i>		27-29	HEITZ, 1926.
" <i>peregrinum</i>	12	24	SUGIURA, 1928b.

LINACEAE

<i>Linum alpinum</i> JACQ.	18	36	KIKUCHI, 1926.
" <i>alpinum</i> L.	9		DE VILMORIN & SIMONET, 1927b
" <i>americanum</i> L. var. <i>al-</i> <i>bum</i>	15	30	KIKUCHI, 1926.
" <i>angustifolium</i>		30	TAMMES, 1923.
" <i>angustifolium</i> HUDS.	9	18	KIKUCHI, 1926.
	15		DE VILMORIN & SIMONET 1927b
		32	MARTZENITZINA, 1927.
" <i>austriacum</i> L.	9	18	KIKUCHI, 1926.
		18	MARTZENITZINA, 1927.
" <i>campanulatum</i> L.	14		DE VILMORIN & SIMONET 1927b
" <i>capitutum</i> KIT.	12	24 (?)	KIKUCHI, 1926.
" <i>catharticum</i> L.	8		DE VILMORIN & SIMONET 1927b
		> 57	MARTZENITZINA, 1927.
" <i>corymbiferum</i> DESF.	15	30	KIKUCHI, 1926.
		18	MARTZENITZINA, 1927.
" <i>flavum</i> L.		30	(NIKOLAJWA) given by EMME & SCHEPELJEVA, 1927.
		30, 32	MARTZENITZINA, 1927.
" <i>grandiflorum</i> DESF.	9		KIKUCHI, 1926.
	8		DE VILMORIN & SIMONET 1927b.
		16	(NIKOLAJWA) given by EMME & SCHEPELJEVA, 1927.
		16, 17	MARTZENITZINA, 1927.
" <i>hirsutum</i> L.	8		DE VILMORIN & SIMONET 1927b.
" <i>Lewisii</i> PURSH.	9	18	KIKUCHI, 1926.
" <i>maritimum</i> L.	10		DE VILMORIN & SIMONET 1927b.
" <i>nervosum</i> WALDST.	15		" " "
" <i>perenne</i> L.	9	18	KIKUCHI, 1926.
	9		DE VILMORIN & SIMONET 1927b.
			(NIKOLAJWA) given by EMME & SCHEPELJEVA, 1927.
		18	MARTZENITZINA, 1927.
" <i>punctatum</i> PR.		18	" " "
" <i>salsoloides</i> LAM.	9		DE VILMORIN & SIMONET, 1927b
" <i>Sibiricum</i> Dc. (<i>perenne</i> <i>L. var.</i>)	9	18	KIKUCHI, 1926.
" <i>strictum</i> L.	9		DE VILMORIN & SIMONET, 1927b
" <i>tenuijfolium</i> L.	9		" " "
		18	MARTZENITZINA, 1927.

LINACEAE(continued)	n	2n	
<i>Linum</i> (continued)			
<i>Linum usitatissimum</i>		30	(REYNDER) given by TAMMES, 1922.
„ <i>usitatissimum</i> GRISEB.	15		DE VILMORIN & SIMONET 1927 ^b
„ <i>usitatissimum</i> L.	15	30	KIKUCHI, 1926.
		32	MARTZENITZINA, 1927.
		30	(NIKOLAJWA) given by EMME & SCHEPELJEVA, 1927.
„ <i>usitatissimum</i> L. ¹⁾		32	EMME & SCHEPELJEVA, 1927.
„ <i>usitatissimum</i> L. (Race 383)		30	„ „ „ „
„ <i>usitatissimum</i> L. (Egyptian race)	16	32	„ „ „ „
„ <i>usitatissimum</i> var. <i>crepitans</i> BÖNNINGH	15, 16	32	„ „ „ „
RUTACEAE			
<i>Erythroxylon brasiliense</i>		89—90	HEITZ, 1926.
(<i>Fortunella margarita</i> × <i>Citrus aurantifolia</i>) × <i>Fortunella hindsii</i>	13, 13+1 ₁		LONGLEY, 1926 ^b .
POLYGALACEAE			
<i>Epirrhizanthes elongata</i> BL.	24 ²⁾		WIRZ, 1910.
	22		SHADOWSKY, 1911.
<i>Salomonina</i> (= <i>Epirrhizanthes cylindrica</i> BL.)	11		SHADOWSKY, 1911.
EUPHORBIACEAE			
<i>Daphniphyllum macropodium</i> Miq.	16 ³⁾		SINÔTO, 1928 ^a .
„ <i>macropodium</i>	16		SIGUURA, 1928 ^a .
<i>Mercurialis annua</i>	6	12	MALTE, 1908, 1910.
	7		STRASBURGER, 1909 ^a , ^b .
	8	16	STRASBURGER, 1910 ^b ; YAMPOLSKY, 1925.
		16 & 32 ⁴⁾	(NIHOUS) given by de Litardiere, 1925.
<i>Mercurialis perennis</i>	> 32		MEURMAN, 1925 ^a .
<i>Ricinus communis</i>		20 ⁵⁾	NĚMEC, 1910 ^a ; SUESSENGUTH, GUTH, 1921.
„ <i>communis</i> . . L.		20	TAYLOR, 1926

¹⁾ Fifteen races from different geographical areas were investigated and of these only one showed $2n = 30$.

²⁾ Counts showed variation from 20 to 24.

³⁾ A pair of unequal chromosomes were distinguishable.

⁴⁾ Sixteen chromosomes were found in the cells of the perome of the root-tip and 32 in the cells of the periblem.

⁵⁾ Syndiploid nuclei were found in roots treated by chloral hydrate.

EUPHORBIACEAE (continued)		n	2n	
<i>Ricinus</i> (continued)				
<i>Ricinus zanzibarensis</i>			20	NĚMEC, 1910a.
<i>Hevea brasiliensis</i> MÜLL. ARG.	8			HEUSSER, C., 1919.
<i>Euphorbia helioscopia</i>			12	NĚMEC, 1910a.
„ <i>hypericifolia</i>			16	MALTE, 1908.
„ <i>procera</i> BIEB.	ca. 8			MODILEWSKI, 1910
<i>Poinsettia</i> (= <i>Euphorbia</i>) <i>pulcherrima</i> R. GRAH.	10			CARANO, 1915.
<i>Euphorbia splendens</i>	12			WENIGER, 1917
SAPINDALES				
EMPETRACEAE.				
<i>Empetrum hermaphroditum</i>				
(LGE.) HAGERUP	26 ¹⁾			HAGERUP, 1927.
„ <i>nigrum</i>	ca. 30			SAMUELSON, 1913.
„ <i>nigrum</i> L.	13 ²⁾			HAGERUP, 1927.
CORIARIACEAE				
<i>Coriaria myrtifolia</i>	ca. 40	ca. 80		GRIMM, 1912.
ANACARDIACEAE				
<i>Rhus Toxicodendron</i>	15			„ 1912.
STAPHYLEACEAE				
<i>Staphylea pinnata</i>	12 ³⁾			WINGE, 1917.
„ <i>trifolia</i> L.	ca. 36			MOTTIER, 1914.
ACERACEAE				
<i>Acer carpinifolium</i>		52		TAYLOR, 1920.
„ <i>negundo</i> L.	13			DARLING, 1909.
	12 or 14			MOTTIER, 1914.
„ <i>negundo</i>	13			TAYLOR, 1920.
„ <i>pseudoplatanus</i>	26	52		„ „
„ <i>rubrum</i>	40			DARLING, 1912.
	36			MOTTIER, 1914; TAYLOR, 1920.
	ca. 50	88-94		TAYLOR, 1920.
	68-75			„ „
„ <i>saccharinum</i>	26	52 & ca. 91		„ „
„ <i>saccharum</i>	13			„ „
HIPPOCASTANACEAE				
<i>Aesculus arguta</i> BUCKLEY ⁴⁾	20			HOAR, 1927.
„ <i>discolor</i> var. <i>mollis</i> N.				
var. ⁴⁾	20			„ „
„ <i>georgiana</i> SARG. ⁴⁾	20			„ „

¹⁾ Two pairs of XY chromosomes, similar to those found in *E. nigrum* L. were found in the divisions of the pollen-mother-cells.

²⁾ A pair of larger XY chromosomes was found in the divisions of pollen-mother cells.

³⁾ Once 13 chromosomes were found.

⁴⁾ Meiotic division was very irregular.

HIPPOCASTANACEAE (continued)		n	2n	
<i>Aesculus</i> (continued)				HOAR, 1927.
	<i>Aesculus glabra</i> WILLD. ¹⁾ . . .	20		
"	<i>glabra</i> far. <i>leucodermis</i> SARG. ²⁾	20	"	"
"	<i>harbisonii</i> SARG. (= <i>A. discolor</i> var. <i>mollis</i> N. var. × <i>A. georgiana</i> SARG.) ²⁾ . .	20	"	"
"	<i>hippocastanum</i> L. ¹⁾ .	20	"	"
"	<i>hippocastanum</i> var. <i>Baumannii</i> SCHNEID..	20	"	"
"	<i>mutabilis</i> var. <i>induta</i> N. hyb. SARG. ²⁾ . .	20	"	"
"	<i>mutabilis</i> var. <i>pendulifolia</i> SARG. (= <i>discolor</i> var. <i>mollis</i> N. var. × <i>A. neglecta</i> SARG.) ²⁾	20	"	"
"	<i>octandra</i> MARSH (Sweet Buckeye) (= <i>A. flava</i> Ait) ³⁾ . .	20	"	"
"	<i>octandra</i> var. <i>discolor</i> REHDER ²⁾	20	"	"
"	<i>octandra</i> var. <i>hybrida</i> D. C. Sargent (= <i>A. octandra</i> MARSH × <i>A. pavia</i> L.) ²⁾ . . .	20	"	"
"	<i>rubicunda</i> LOIS (<i>A. carnea</i> HAYNE) (= <i>A. hippocastanum</i> L. × ? <i>A. pavia</i> L.) ²⁾ .	20	"	"
"	<i>rubicunda</i> var. <i>brioti</i> CARS. (<i>A. hippocastantum</i> L. × <i>A. pavia</i> L.) ²⁾	40	"	"
"	<i>woerlitzensis</i> KOHNE. E. ²⁾	20	"	"
BALSAMINACEAE				
	<i>Impatiens pallida</i> NUTT.	12		RAITT, 1916.
"	<i>parviflora</i>		20	HEITZ, 1924.
"	<i>Sultani</i> HOOK. ca. 7			OTTLEY, 1918.

¹⁾ Meiotic division was quite regular.²⁾ Meiotic division was very irregular.³⁾ Meiotic division was regular except in cells of one tree growing in the Harvard Bot. Gard. under the name *A. flava*.

RHANALES	n	2n	
VITACEAE			
<i>Cissus gongyloides</i>		32	LANGLET, 1927b.
MALVALES			
TILIACEAE			
<i>Tilia platyphyllos</i>	30-33 ¹⁾		SVENSSON-STENAR, 1925.
MALVACEAE			
<i>Malva palmata</i>	ca. 20	"	"
" <i>pusilla</i>	20-30	"	"
<i>Sidalcea neomexicana</i> A. GRAY.	13		TJEBBES, 1928.
<i>Hibiscus rosa sinensis</i>	72		YOUNGMAN, 1927
" <i>tricuspis</i>	40	"	"
" <i>tiliaceus</i>	48	"	"
<i>Thespesia populnea</i>	8, 10, 13 ²⁾	"	"
<i>Gossypium barbadense</i>		52	(NIKOLAJEWA) given by ZAITZEV, 1923.
	8, 13 ³⁾		YOUNGMAN, 1927.
" <i>barbadense</i> var. <i>maritima</i> WATT.	26		DENHAM, 1924.
" <i>barbadense</i> L. var. <i>Pima</i> (Egyptian)	26		BEAL, 1928.
" <i>barbadense</i> L. (Sea Island Commercial var.)	26		" 1928.
" <i>herbaceum</i> L. ⁴⁾	26		(NIKOLAJEWA) given by Zaitzev, 1923.
" <i>hirsutum</i> L. ⁴⁾	52		(NIKOLAJEWA) given by Zaitzev, 1923.
" (Commercial cotton, near <i>G. hirsutum</i>)	26		DENHAM, 1924.
" <i>hirsutum</i> L. var. Miller	26		BEAL, 1928.
" <i>hirsutum</i> L. var. Trice	26	"	"
" <i>hirsutum</i> L. var. Triumph	26	"	"

¹⁾ From 90 to 100 chromosomes were counted in a metaphase plate in an edosperm cell.

²⁾ On heterotypic equatorial plates 13 bodies massed together at the centre as 8. In hemeotypic equatorial plates 10 and 13 chromosome bodies appeared respectively in the sister cells and in the pollen tetrad, three nuclei contained 10 chromosomes and one nuclei, 13.

³⁾ Only 8 bodies were seen on the equatorial plate.

⁴⁾ A hybrid was obtained between *G. herbaceum* L. (*Buchaskaja Gusa*) and *G. hirsutum* L. var. *laciniata* M. but the chromosome number was not determined.

MALVACEAE (continued)	n	2n	
<i>Gossypium</i> (continued)			
<i>Gossypium mexicanum</i>		52	(NIKOLAJEWA) given by ZAITZEV, 1923.
<i>Acala</i> (<i>G. mexicanum</i> type) . .	26		DENHAM, 1924.
<i>Gossypium</i> Nanking		26	(NIKOLAJEWA) given by ZAITZEV, 1923.
„ <i>obtusifolium</i>		26	(NIKOLAJEWA) given by ZAITZEV, 1923.
„ <i>punctatum</i>		52	(NIKOLAJEWA) given by ZAITZEV, 1923.
„ <i>barbadense</i> × <i>herbaceum</i>	28		CANNON, 1903a.
STERCULIACEAE			
<i>Theobroma cacao</i>	3	16	KUYPER, 1914.
		16	CHEESMAN, 1927.
CAMELLIACEAE			
<i>Camellia theifera</i> (Griff.) DYER (= <i>Thea sinensis</i>) . . .	15		COHEN STUART 1916.
PARIETALES			
GUTTIFERAE			
<i>Hypericum calycinum</i>	10		CHATTAWAY, 1926.
„ <i>elegans</i>	16		„ „
„ <i>humitutum</i>	3		WINGE, 1925; CHATTAWAY, 1926.
„ <i>pulchrum</i>	9		CHATTAWAY, 1926.
„ <i>quadangrulum</i>	8		WINGE, 1925; CHATTAWAY, 1926.
<i>Garcinia Treubii</i> PIERRE . . .	ca. 48		TREUB, 1911.
ELATINACEAE			
<i>Elatine Hydropiper</i> L.	20		FRISENDAHL, 1927.
TAMARICACEAE			
<i>Myricaria germanica</i> DESV. . .	12		FRISENDAHL, 1912.
CISTACEAE			
<i>Cistus albidus</i> L.	9		CHIARUGI, 1925.
„ <i>laurifolius</i> L.	9		„ „
„ <i>monspeliensis</i> L.	9		„ „
„ <i>salviaefolius</i>	8		„ 1924.
„ <i>salviaefolius</i> L.	9		„ 1925.
„ <i>villosus</i> L.	9		„ „
<i>Helianthemum alpestre</i> (Jacq.) DUNAL. . . .	16		„ „
„ <i>apenninum</i> (L.) LAM. et DC. . .	16		„ „

CISTACEAE (continued)	n	2n	
<i>Fumana arabica</i> (L.) SPACH. = <i>Helianthemum arabi-</i> <i>cum</i> PERS.	16		CHIARUGI, 1925.
" <i>procumbens</i> GREN. GODR. <i>Helianthemum</i> <i>Fumana</i> MILL.	16		" "
<i>Helianthemum Chamaecistys</i> MILL.	16		" "
<i>Tuberaria guttata</i>	24		" 1924.
" <i>guttata</i> (L. GROSS = <i>Helianthemum gut-</i> <i>tatum</i> MILL.	24		" 1925.
<i>Halimium halimifolium</i> (L.) WILLK et LANGE (= <i>Helianthemum</i> <i>halimifolium</i> WILLD.	9		" "
<i>Helianthemum ledifolium</i> (L.) MILL.	8		" "
" <i>polifolium</i>	8		" "
VIOLACEAE			
<i>Hybanthus parviflorus</i> (VENT.) BAILL.	12		HEILBORN, 1926.
VIOLA ¹⁾			
Section <i>Dischidium</i>			
<i>Viola biflora</i> L.	6		CLAUSEN, J., 1926, 1927b.
" <i>biflora</i>	6	12	GERSHOY, 1928.
Section <i>Chamaemelianum</i>			
<i>Viola canadensis</i>	12	24	GERSHOY, 1928.
" <i>eriocarpa</i>	6	12	" "
" <i>glabella</i>	6		MIYAJI, 1913, 1927a.
" <i>glabella</i> (American). . .	12	24	GERSHOY, 1928.
" <i>lobata</i>	6	12	" "
" <i>ocellata</i>	6	12	" "
" <i>praemorsa</i>	15	30	" "
" <i>pubescens</i>	6	12	" "
" <i>purpurea</i>	15	30	" "
" <i>rugulosa</i> GREENE.	12		CLAUSEN, J., 1926, 1927b.
" <i>rugulosa</i>	12	24	GERSHOY, 1928.
" <i>sarmentosa</i> .Q.	21	42	" "
Section <i>Melianium</i>			
<i>Viola alpestris</i> DC. (W. BECKR.)	13		CLAUSEN, J., 1926, 1927b.
" <i>arvensis</i> MURR. ²⁾	17		" J., 1921, 1922, 1924, 1926, 1927b.

¹⁾ Classification under sections is according to ENGLER & PRANTL.

²⁾ Three different types, Line 52, Type C, and Line I were used.

VIOLACEAE (continued)		n	2n	
VIOLA (continued)				
Section <i>Melanium</i> (continued)				
<i>Viola arvensis</i>	18	36	GERSHOY, 1928.	
" <i>calcarata</i> L. ¹⁾	20		CLAUSEN, J., 1926, 1927b.	
" <i>cenisea</i> L.	10		CLAUSEN, J., 1927b.	
" <i>cornuta</i> L.	10		HEILBORN, 1926.	
"	11		CLAUSEN, J., 1926, 1927b.	
" <i>cornuta</i>	21	42	GERSHOY, 1928.	
" <i>declinata</i> WALDST. et KIT.	10		CLAUSEN, J., 1927b.	
" <i>elegantula</i> SCHOTT ²⁾	10		CLAUSEN, J., 1926, 1927b.	
" <i>Kitaibeliana</i> ROEM. et SCHULT.	7		CLAUSEN, J., 1927b.	
" <i>Kitaibeliana</i> ROEM. et SCHULT. (another variety)	ca. 12		CLAUSEN, J., 1927b.	
" <i>Kitaibeliana</i> ROEM. et SCHULT. (astout variety)	18		CLAUSEN, J., 1926, 1927b.	
" <i>lutea</i>	24	48	GERSHOY, 1928.	
" <i>lutea</i> HUDS.	24		CLAUSEN, J., 1926.	
" <i>lutea</i> HUDS. var. <i>calaminaria</i> LEJ.	ca. 24		" " 1927b.	
" <i>lutea</i> HUDS. subs. <i>elegans</i> (KIRSCHL.) W. BECKR.	24		" " "	
" <i>Munbyana</i> BOISS. et REUT. var. <i>Battandieri</i> (W. BECKR. pro spec.)	30		" " 1926, 1927b.	
" <i>orphanidis</i> BOISS.	10+1 ₁		" " 1927b.	
" <i>orthoceras</i> LEDEB.	11		" " 1926, 1927b.	
" <i>Raffinesquii</i>	13	36	GERSHOY, 1928.	
" <i>rothomagensis</i> DESF.	17		CLAUSEN, 1926, 1927b.	
" <i>rothomagensis</i>	18	36	GERSHOY, 1928.	
" <i>tricolor</i> var.	12	24	" "	
" <i>tricolor</i> var. α	12	24	" "	
" <i>tricolor</i> var. β	12	24	" "	
" <i>tricolor</i> var. γ	12	24	" "	
" <i>tricolor</i> L.	13		CLAUSEN, J., 1921, 1922, 1924, 1926, 1927b.	
" <i>tricolor</i> L. type <i>alba</i>	13		CLAUSEN, J., 1927b.	
" <i>tricolor</i> L. type <i>hortensis</i>	13		" " "	
" <i>tricolor</i> L. type <i>lutea</i>	13		" " "	
" <i>tricolor</i> L. type <i>maritima</i> , <i>rosea</i>	13		" " "	

¹⁾ CLAUSEN (1927) states that another type under the name *V. Bertolonii* Salis (= *corsica* ROUY et FOUC.) had $2n = 40$.

²⁾ This is synonymous with *V. latisejala* WETTST. and *V. bosniaca* FORMANEK.

VIOLACEAE (continued)	n	2n	
VIOLA (continued).			
Section <i>Nominium</i> (continued)			
<i>Viola tricolor</i> L. type <i>violacea</i>	13 ¹⁾		CLAUSEN, J., 1927b.
„ <i>elegantula</i> SCHOTT, <i>V. declinata</i> W. et K. spec.			
„ <i>Valderia</i> ”	10		„ „ 1926.
„ <i>Valderia</i> ²⁾	10		„ „ 1927.
„ <i>Zoysii</i> WOLF.	20		„ „ 1927b.
„ (commercial variety)			
„ („ <i>Florencicum</i> ”	24	48	GERSHOY, 1928.
„ (commercial variety)			
„ „ <i>pansy</i> ”	24	48	„ „
Section <i>Nominium</i>			
<i>Viola adunca</i>	9	18	„ „
„ <i>affinis</i>	27	54	„ „
„ <i>blanda</i>	24	48	„ „
„ <i>Brittoniana</i>	27	54	„ „
„ <i>canina</i> REHB.	36		CLAUSEN, J., 1926, 1927b.
„ <i>chinensis</i>	24	48	GERSHOY, 1928.
„ <i>conspersa</i>	9	18	„ „
„ <i>cucullata</i> AIT.	26		CLAUSEN, J., 1927b.
„ <i>cucullata</i>	27	54	GERSHOY, 1928.
„ <i>diffusa</i>	26		(MIYAJI, 1913), given by ISHIKAWA, 1916.
„ <i>elatior</i> FRIES.	20		CLAUSEN, J., 1927b.
„ <i>elatior</i>	21	42	GERSHOY, 1928,
„ <i>emarginata</i>	27	54	„ „
„ <i>epipsila</i> LEDEB.	12		CLAUSEN, J., 1926, 1927b.
„ <i>fimbriatula</i>	27	54	GERSHOY, 1928.
„ <i>grypoceras</i> A. GRAY.	10		MIYAJI, 1913, 1927a.
„ <i>hirsutula</i>	27	54	GERSHOY, 1928.
„ <i>hirta</i> L.	10		HEILBORN, 1926; CLAUSEN, J., 1926, 1927b.
„ <i>Howellii</i>	21	42	GERSHOY, 1928.
„ <i>incognita</i>	21	42	„ „
„ <i>japonica</i> LANGSD.	24		MIYAJI, 1913, 1927a.
„ <i>labradorica</i>	9	18	GERSHOY, 1928.
„ <i>lanceolata</i>	12	24	„ „
„ <i>Langloisii</i>	27	54	„ „
„ <i>latiuscula</i>	27	54	„ „
„ <i>Lovelliana</i>	27	54	„ „

¹⁾ Irregularities occurred in the meiotic divisions of this type.

²⁾ CLAUSEN (1927) states that the plant examined was not *V. Valderia* ALL. but corresponded to *V. Valderia* REHB., generally referred to as *V. heterophylla* BERTOL.

VIOLACEAE (continued)		n	2n	
VIOLA (continued)				
Section <i>Nominium</i> (continued)				
<i>Viola mirabilis</i> L.	10			CLAUSEN, J., 1926, 1927b.
" <i>Missouriensis</i>	27	54		GERSHOY, 1928.
" <i>neglecta</i> M. BIEB.	20			CLAUSEN, J., 1927b.
" <i>nephrophylla</i>	27	54		GERSHOY, 1928.
" <i>nipponica</i> MAXIM.	10			MIYAJI, 1913, 1927a.
" <i>odorata</i>	7-11	18		GERSHOY, 1928.
" <i>odorata</i> L.	10			(WINGE, 1921) given by CLAUSEN, J., 1921; HEILBORN, 1926; CLAUSEN, J., 1926, 1927.
" <i>okuboi</i> MAKINO (= <i>V. Keiskei</i> Miq. var.) ¹⁾	12			MIYAJI, 1913, 1927a.
" <i>okuboiglabra</i> MAKINO	12			MIYAJI, 1913, 1927a.
" <i>pallens</i>	12	24		GERSHOY, 1928.
" <i>palmata</i>	27	54		" "
" <i>palustris</i>	24	48		" "
" <i>palustris</i> L. ²⁾	likely			
	24			CLAUSEN, J., 1927b.
" <i>papilionacea</i>	27	54		GERSHOY, 1928.
" <i>Patrini</i> DC.	36(?)			MIYAJI, 1913, 1927a.
" <i>Patrini</i> var. <i>chinensis</i> (= <i>V. Mandshurica</i> W. BECKER) ¹⁾		48		(MIYAJI, 1913), given by ISHIKAWA, 1916.
" <i>pedata</i>	27	54		GERSHOY, 1928.
" <i>pedatifida</i>	27	54		" "
" <i>phalacrocarpa</i> MAXIM.	12			MIYAJI, 1913, 1927a.
" <i>pinnata</i> L.	ca. 24			CLAUSEN, J., 1927b.
" <i>pinnata</i>	24	48		GERSHOY, 1928.
" <i>primulifolia</i>	12	24		" "
" <i>renifolia</i>	12	24		" "
" <i>rostrata</i>	9	18		" "
" <i>rotundifolia</i>	6	12		" "
" <i>sagittata</i>	27	54		" "
" <i>Selkirkii</i>	12	24		" "
" <i>septemloba</i>	27	54		" "
" <i>septentrionalis</i>	27	54		" "
" <i>silvestris</i> REHB.	10			CLAUSEN, J., 1926, 1927b.
" <i>sylvestris</i>	21	42		GERSHOY, 1928.
" <i>sororia</i>	27	54		" "
" <i>stagnina</i> KIT.	10			CLAUSEN, J., 1926, 1927b.

¹⁾ Synonymy according to CLAUSEN, J., 1927b.²⁾ By calculation from the hybrid *V. epipsila* LEDEB. × *V. palustris* L.

VIOLACEAE (continued)	n	2n	
<i>Viola</i> (continued)			
	probably		
	10		HEILBORN, 1926
<i>Viola striata</i>	9	18	GERSHOY, 1928.
" <i>triloba</i>	27	54	" "
" <i>verecunda</i> A. GRAY . . .	10		MIYAJI, 1913, 1927a.
" <i>villosa</i>	27	54	GERSHOY, 1928.
" <i>athois</i> W. BECKER" . .	12		CLAUSEN, J., 1926.
" <i>calcarata grandiflora</i> " . .	20 & 22 ¹⁾		" " 1927b.
" <i>cornuta hybrida</i> " (<i>V. Williamsii</i> WITTR.)	ca. 24		" " "
" <i>gracilis</i> "	$24 + 4_1$ $\frac{2}{2}$		" " "
" <i>Gustav Wermig</i> "	11		" " "
" <i>lutea grandiflora</i> " . . .	19 & 25 ²⁾		" " "
" <i>splendida</i> "	$16 + 9_1$ $\frac{2}{2}$		" " 1927b
" <i>alpestris</i> × <i>V. tricolor</i> .	$\frac{26_1}{2}$		" " "
" <i>arvensis</i> MURR. type C. × × Line 52 F ₁ (Plant V. 773)	$16, 15 + 4_1$ $\frac{2}{2}$		" " "
" <i>arvensis</i> MURR. type C. × Line 52 F ₂	$14 + 4_1$ $\frac{2}{2}$		" " "
" <i>arvensis</i> MURR. (Line 52) <i>V. tricolor</i> L. ³⁾ F ₁ . . .	$13 + 4_1$ ⁴⁾ , $\frac{2}{2}$ $12 + 6_1$ $\frac{2}{2}$		" " "
" <i>arvensis</i> MURR. (Line 52) × <i>V. tricolor</i> L. F ₁ (sterile types)	14, 17-18, $13 + 2_1$ $\frac{2}{2}$		" " "

¹⁾ In one anaphase plate there were 20 and in another 22 chromosomes.

²⁾ In the homoecotypic telophase, 19 were found at one pole and 25 at the other.

³⁾ Five tricolor types were used: *tricolor typica* (*violacea*) Line 504, 2; *tricolor alba* Line 320, 3; *tricolor lutea* Line 511, 4; *tricolor maritima, rosea*, Line 322 and 5; *tricolor hortensis, velutina* 3, Line 519.

⁴⁾ In heterotypic anaphase the univalents distributed at random to either pole, sometimes a few being left out of the daughter nuclei. At times 1 or 2 univalents split at the heterotypic metaphase.

VIOLACEAE (continued)	n	2n	
<i>Viola</i> (continued)			
<i>Viola arvensis</i> MURR. (Line 52)			
× <i>V. tricolor</i> F ₂ . . .	13-16,		
	13-14 + $\frac{1_1-4_1^1}{2}$		CLAUSEN, J., 1927b.
„ <i>arvensis</i> MURR. (Line 52)			
× <i>V. tricolor</i> F ₃	13-16		„ „ „
„ <i>arvensis</i> MURR. (Line 52)			
× <i>V. tricolor</i> F ₄ . . .	14-16(?)		„ „ „
„ <i>cornuta</i> L. × <i>V. eleganta</i> SCHOTT	10-11		„ „ „
„ <i>epipsila</i> LEDEB. × <i>V. palustris</i> L.	12 + $\frac{12_1^2}{2}$		„ „ „
„ <i>hirta</i> × <i>V. odorata</i> . . .	9-6 + $\frac{1-8_1}{2}$		HEILBORN, 1926.
„ <i>lutea</i> HUDS. × <i>V. tricolor</i> L.	ca. 24 ²⁾		CLAUSEN, J., 1927b.
„ <i>odorata</i> × <i>V. hybrida</i> (?)	10		„ „ „
„ <i>Riviniana</i> × <i>V. silvestris</i> (spontaneous hybrid) .	20 ³⁾		„ „ „
„ <i>tricolor</i> L. type <i>lutea</i> × type <i>violacea</i> F ₁ . . .	13		„ „ 1926.
„ <i>tricolor</i> L. type <i>lutea</i> × type <i>maritima rosea</i> F ₁ .	13		„ „ „
„ <i>tricolor</i> L. (<i>violacea</i>) × <i>V. arvensis</i> MURR. F ₁ (Plant V 209-3)	17-18, 13 + 2 ₁		„ „ „
„ <i>tricolor</i> L. (<i>violacea</i>) × <i>V. arvensis</i> MURR. F ₂ (Plants 336-1, 2, 3) . .	21-25		„ „ „
„ <i>tricolor</i> L. (<i>violacea</i>) × <i>V. arvensis</i> MURR. F ₃ (Plants 615-1, 2, 4) . .	21-23		„ „ „
„ <i>tricolor</i> L. (<i>violacea</i>) × <i>V. arvensis</i> MURR. F ₄ (Plants 754-1, 3, 4, 6)	20-25		„ „ „

¹⁾ In the meiotic divisions of F₂, conditions varied from regular to very irregular divisions, from including 1 to many univalents, but 13 bivalents + 1—4 univalents occurred most frequently.

²⁾ The bivalent chromosomes could not be clearly distinguished but 9—11 univalents were visible.

³⁾ The presence of a number of univalents and irregular divisions characterized this hybrid.

PASSIFLORACEAE	n	2n	
<i>Viola</i> (continued)			
<i>Viola tricolor</i> L. (<i>violacea</i>) × <i>V. arvensis</i> MURR. F ₃ . (Plant 616.2 (new type- constant)	14		CLAUSEN, J., 1926.
„ <i>tricolor</i> × <i>V. arvensis</i> off- spring ¹⁾		23	„ „ 1927a.
„ <i>tricolor</i> L. (<i>violacea</i>) × <i>V.</i> <i>arvensis</i> MURR. = <i>Viola</i> <i>hyperchromatica</i> n. sp. .	21-23		„ „ 1926.
<i>Passiflora coerulea</i>		18	HEITZ, 1926.
„ <i>princeps coccinea</i>	9	18	„ „
CARICACEAE			
<i>Carica papaya</i>		18	HEILBRON, 1922.
„ <i>papaya</i> L.	9		MEURMAN, 1925b
„ <i>papaya</i> L.	9	18	SUGIURA, 1927.
DATISCEAE			
<i>Datisca cannabina</i> L.	11 ²⁾		SINOTO, 1928a.
BEGONIACEAE			
BEGONIA ³⁾			
Section <i>Augustia</i> ³⁾			
<i>Begonia Dregei</i>		28-(30)	HEITZ, 1927b.
Section <i>Rostrobegonia</i>			
<i>Begonia Engleri</i>		20-24	„ „
Section <i>Haagea</i>			
<i>Begonia dipetala</i>		ca 28	„ „
Section <i>Platycentrum</i>			
<i>Begonia cateayana</i>		20-24	„ „
„ <i>Henslayana</i>		20-24	„ „
Section <i>Petermannia</i>			
<i>Begonia isoptera</i>		24-28	„ „
Section <i>Scheidweilera</i>			
<i>Begonia luxurians</i>		> 20	„ „
Section <i>Ewaldia</i>			
<i>Begonia rigida</i>		26/28	„ „
„ <i>valida</i>		36/38	„ „
Section <i>Lepsia</i>			
<i>Begonia foliosa</i>		> 50-60	„ „
„ <i>Jamesoniana</i>		34-42	„ „
Section <i>Pritzelia</i>			
<i>Begonia dichotoma</i>		34/36	„ „

¹⁾ The plants examined were the result of crossing normal ♂ plants with self sterile ♀ ones. Cytological conditions showed regularity of division.

²⁾ A pair of unequal chromosomes was distinguishable.

³⁾ This classification under sections is according to ENGLER & PRANTL.

BEGONIACEAE (continued)	n	2n	
<i>Begonia</i> (continued)			
<i>Begonia echinosepala</i>		> 30	HEITZ, 1927b.
" <i>sanguinea</i>		> 30/40	" "
" <i>scandens</i>		(36)/42	" "
" <i>vitifolia</i>		(33)-36	" "
Section <i>Gaertia</i>			
<i>Begonia argyrostigma</i> (= <i>macu-</i>			
<i>lata</i> ?)		> 40	" "
" <i>maculata</i>		30/40	" "
" <i>undulata</i>		> 40	" "
Section <i>Tittelbachia</i>			
<i>Begonia fuchsoides</i>		> 40	" "
Section <i>Huszia</i>			
<i>Begonia Baumannii</i>		24-28	" "
Section <i>Magnusia</i>			
<i>Begonia carolinifolia</i>		28	" "
" <i>conchaefolia</i>		24-28	" "
" <i>crassicaulis</i>		ca. 23	" "
" <i>heradaefolia</i>		28	" "
" <i>imperialis</i>		28/(30)	" "
" <i>incana</i>		30/40	" "
" <i>involuta</i>		20	" "
" <i>manicata</i>		24-30	" "
" <i>metallica</i>		ca. 28-30	" "
" <i>venosa</i>		ca. 28	" "
Section <i>Donaldia</i>			
<i>Begonia unimifolia</i>		24-28	" "
Section <i>Begoniastrium</i>			
<i>Begonia acerifolia</i>		32-36	" "
" <i>incarnata</i>		> 60/70	
		(towards	
		100)	" "
" <i>Schmidtiana</i>		29-32	" "
Section (?)			
<i>Begonia assamica</i>		(24)-26-	
		(28)	" "
" <i>spec. Java</i>		24-28	" "
" <i>mexicana</i>		27-28	" "

MYRTIFLORAE

PENAEACEAE

Sarcocolla minor 11-12 STEPHENS, 1909.

THYMELAEACEAE

Daphne alpina 9 STRASBURGER, 1909a.

 " *Kiusiana* 9 18 OSAWA, 1913b.

THYMELAEACEAE (continued)		n	2n	
<i>Daphne</i> (continued)				
<i>Daphne Mezereum</i>	9			STRASBURGER, 1909a
" <i>odora</i>	12-14	28		OSAWA, 1913b.
" <i>Pseudomeserum</i>	9	18		" "
<i>Wikstroemia canescens</i>	9			STRASBURGER, 1910a
" <i>indica</i> (L.) C. A.				
" <i>MEY</i>	26			WINKLER, 1906.
" <i>indica</i>	26			STRASBURGER, 1909a.
		20-28		" 1910d.
<i>Gnidia carinata</i> THBG.	9			" 1909a.
ELAEAGNACEAE				
<i>Elagnus angustifolia</i>	6	12		SOBOLEWSKA, 1926.
<i>Hippophaë rhamnoides</i>	10	20		" "
LYTHRACEAE				
<i>Lythrum hyssopifolium</i>	10			TISCHLER, 1928b
" <i>Salicaria</i>	ca. 24			" 1917.
		ca. 48		" 1918a.
	25			" 1928b.
MELASTOMATACEAE				
<i>Centradenia floribunda</i>		24-26		HEITZ, 1926.
<i>Berthelomia acnea</i>		28-32		" "
<i>Memecylon floribundum</i> BLUME		24 ¹⁾		RUYS, 1925.
<i>Mouriria anomala</i> PULLE . .		24 ¹⁾		" 1924 ²⁾ , 1925.
OENOTHERACEAE				
<i>Epilobium adnatum</i>	18			SCHWEMMLE, 1924a, b.
" <i>angustifolium</i>	18			MICHAELIS, 1925.
	18 ³⁾			" 1926.
" <i>hirsutum</i>	18 ³⁾			HÅKANSSON, 1924a; SCHWEMMLE, 1924a, b; MICHAELIS, 1926, 1928.
	18	36		MICHAELIS, 1925.
" <i>hirsutum</i> (semi-gigas mutant)	24-30	54		" 1928.
" <i>montanum</i>	18			HÅKANSSON, 1924a; SCHWEMMLE, 1924a, b; LEHMANN & SCHWEMMLE, 1927.
" <i>parviflorum</i>	18			SCHWEMMLE, 1924a, b; LEHMANN & SCHWEMMLE, 1927.

¹⁾ In previous list, GAISER (1926), this number was incorrectly given in the haploid column.

²⁾ RUYS (1924) had counted 12 sets of 3 chromosomes in the endosperm nuclei.

³⁾ With low temperatures irregular pairing and even lack of pairing of the chromosomes was observed in diakinesis and unequal distribution of the chromosomes to the poles in both pollen- and embryo-sac-mother cells.

OENOTHERACEAE (continued)	n	2n	
<i>Epilobium</i> (continued)			
<i>Epilobium roseum</i>	18		SCHWEMMLE, 1924a, b; MICHAELIS, 1925.
„ <i>gigas</i> (<i>E. montanum</i> × <i>E. parviflorum</i>)	18		LEHMANN & SCHWEMMLE, 1927
„ <i>gigas</i> × <i>E. montanum</i> (2472)		36	LEHMANN & SCHWEMMLE, 1927.
„ <i>gigas</i> × <i>E. parviflorum</i> (2471)		36	„ „ „ „
„ <i>hirsutum</i> × <i>E. luteum</i>		54 ¹⁾	MICHAELIS, 1923.
<i>Jussieuia repens</i> L.	3		SINÓTO, 1928b.
<i>Oenothera agari</i>	14 ²⁾		SHEFFIELD, 1927.
„ <i>ammophila</i> FOCKE	14 ³⁾		„ „
„ <i>argillicola</i> MACKENZIE		14	BOEDIJN, 1924a, 1925b.
„ <i>Bauri</i>		14	„ „ „
„ <i>Berteriana</i>	7	14	SCHWEMMLE, 1927.
„ <i>Biennis</i>	7		MACAVOY, 1913; KLEINMAN, 1923.
		14	GATES 1909a; DAVIS, 1910; STOMPS, 1912a, 1916, 1925, 1928; GOLDSCHMIDT, 1913; RENNER, 1914; DE VRIES, 1915a, 1925a; VAN OVEREEM, 1921, 1922; BOEDIJN, 1924a, 1925b.
	14 ⁴⁾		CLELAND, 1923, 1925, 1926a, 1928, (1926) 1929; EMERSON, 1924; VALCANOVER, 1926; KIHARA, 1927a.
„ <i>Biennis albinervis</i>		15	VAN OVEREEM, 1921, 1922.
„ <i>Biennis cana</i>		15	DE VRIES, 1925a.
„ <i>Biennis Chicago</i>		14	BOEDIJN, 1924a, 1925b.
„ <i>Biennis cruciata</i>		14	STOMPS, 1928.

¹⁾ Fifty-two was the highest number of chromosomes actually counted.

NOTE: The foot-notes on *Oenothera* refer to the arrangement of chromosomes (paired or in circles) found in diakinesis. Thus the conditions are briefly indicated along with the investigator's name. All references on *Oenothera* from GAISER (1926) have been included here.

²⁾ Circles variable (SHEFFIELD, 1927).

³⁾ Circle of 12 + 1 pair (SHEFFIELD, 1927).

⁴⁾ Circle of 6 & circle of 8 (CLELAND, 1923, 1926, 1928, (1926) 1929; VALCANOVER, 1926, KIHARA 1927a). EMERSON (1924) states there was no pairing.

OENOTHERACEAE (Continued)	n	2n
<i>Oenothera</i> (continued)		
„ <i>Biennis cruciata</i> gigas		28 STOMPS, 1925.
„ <i>Biennis</i> gigas . . .		28 „ „
„ <i>Biennis</i> gigas nanella.		28 „ „
„ <i>Biennis</i> nanella . .		14 „ 1928.
„ <i>Biennis</i> lata		15 GATES & THOMAS, 1914; DE VRIES, 1915a; 1925a.
„ <i>Biennis</i> latifolia . .		16 VAN OVEREEM, 1921, 1922
„ <i>Biennis</i> liquida . .		15 DE VRIES, 1925a.
„ <i>Biennis</i> militaris . .		15 „ „ „
„ <i>Biennis</i> pallascens. .		15 „ „ „
„ <i>Biennis</i> scintillans .		15 STOMPS, 1928.
„ <i>Biennis</i> semi-gigas .		21 STOMPS, 1912b, 1914, 1925; VAN OVEREEM, 1921, 1922.
		14 STOMPS, 1928.
„ <i>Biennis</i> sulpurea . .	14 ¹⁾ $\frac{2}{2}$	EMERSON, 1924; CLELAND, 1926a, 1928, (1926), 1929.
„ <i>Biennis</i> sulpurea gigas		28 STOMPS, 1928.
„ <i>Cockerelli</i> BARTLETT		14 BOEDIJN, 1924a, 1925b.
	14 ²⁾ $\frac{2}{2}$	OELKERS, 1926.
„ <i>cruciata</i> NUTT (<i>O. stenomeres</i>)		14 STOMPS, 1912a, 1916; BARTLETT, 1915a; BOEDIJN, 1924a, 1925b.
„ <i>stenomeres</i> mut. gigas		28 (ARZBERGER), given by BARTLETT, 1915a, b.
„ <i>disjuncta</i>		14 BOEDIJN, 1924a, 1925b.
„ <i>eriensis</i>	14 ³⁾ $\frac{2}{2}$	SHEFFIELD, 1927.
„ <i>franciscana</i> BARTLETT	14 ⁴⁾ $\frac{2}{2}$	CLELAND, 1922, 1923, 1924, 1925, 1928, (1926), 1929; (CLELAND) given by SHULL 1928.
„ <i>franciscana</i> sulpurea	14 ⁵⁾ $\frac{2}{2}$	14 BOEDIJN, 1924a, 1925b. CLELAND, 1923, 1924, 1925, 1928, (1926), 1929.

¹⁾ Circle of 6 & circle of 8 (CLELAND, 1928, (1926) 1929). EMERSON (1924) states there was no pairing.

²⁾ Circle of 12 or 14 (OELKERS, 1926).

³⁾ Circle of 14 (SHEFFIELD, 1927).

⁴⁾ Circle of 14 (CLELAND, 1922); circle of 4 or 5 (CLELAND, 1928, Cleland, given by SHULL, 1928; 3 rings linked to circle of 4 (CLELAND, (1926) 1929); another form, no circles (CLELAND, 1928, (1926) 1929, CLELAND, given by SHULL, 1928).

⁵⁾ One form, circle of 12 + 1 pair (CLELAND, 1924, 1928); another form, 7 pairs (CLELAND, 1928).

OENOTHERACEAE (Continued)	n	2n	
<i>Oenothera</i> (continued)			
<i>Oenothera franciscana sulfurea</i>			
(dwarf)	7 ¹⁾		EMERSON, 1928.
<i>furca</i>		14	BOEDIJN, 1924a, 1925b.
<i>germanica</i>		14	" " "
<i>glauca</i>	14		SCHWEMMLE, 1924b.
<i>grandiflora</i> Ait. . .	7 ²⁾		DAVIS, 1919; CLELAND, 1923, (1926), 1929.
		14	BOEDIJN, 1924a, 1925b.
		15	VAN OVEREEM, 1921.
<i>grandiflora</i> var. <i>gigas</i>	14		DE VRIES, 1918c.
		28	VAN OVEREEM, 1921, 1922; BOEDIJN, 1924c.
<i>grandiflora</i> var. <i>gigas</i>			
<i>nanella</i>		27	VAN OVEREEM, 1921.
<i>grandiflora gigas ochra-</i>			
<i>cea</i>		28	BOEDIJN, 1924c.
<i>grandiflora semi-gigas</i>		21	DE VRIES, 1918c.
<i>Hookeri</i>		14	SCHWEMMLE, 1924b; BOEDIJN, 1924a, 1925b; MICHAELIS, 1928.
	7 ³⁾		SCHWEMMLE, 1924b; CLELAND, 1928.
<i>Lamarckiana</i> . . .	7 ⁴⁾	14	LUTZ, 1907, 1908, 1916; GEERTS, 1907, 1908a, b, 1909; GATES, 1907b, 1908a, b, c, 1909b, 1915a; DAVIS, 1911; GATES & THOMAS, 1914; REN- NER, 1914; STOMPS, 1912, 1916; BOEDIJN, 1920, 1924a, b, 1925a, 1925b; HABER- LANDT, 1921; VAN OVEREEM, 1921, 1922; SINOTO, 1922; DE VRIES & BOEDIJN, 1923, 1924a, 1925a, b; CLELAND, 1923, 1925, 1928, (1926), 1929; HÅKANSSON, 1924b, 1926b; LELIVELD, 1928.

¹⁾ Seven pairs (EMERSON, 1928).²⁾ Seven pairs (DAVIS, 1909, CLELAND, 1928, (1926) 1929).³⁾ Seven pairs (SCHWEMMLE, 1924b; CLELAND, 1928).⁴⁾ Seven pairs (BOEDIJN, 1924b); circle of 12 + 1 pair (CLELAND, 1925, 1928, (1926) 1929; HÅKANSSON, 1926).

OENOTHERACEAE (continued)	n	2n
<i>Oenothera</i> (continued)		
<i>Oenothera Lamarckiana</i> Mutants		
<i>aberrans</i> (<i>O. lala</i> × <i>O.</i>		
<i>Lamarckiana</i>).		14 + fragment LUTZ, 1916.
<i>albida</i>		15 LUTZ, 1908, 1917a; DE VRIES & BOEDIJN, 1923, 1924a; BOE- DIJN, 1924b, 1925b; DE VRIES & GATES, 1928.
<i>albida gigantea</i>		24 VAN OVEREEM, 1922.
<i>angustifolia</i>	14	DULFER, 1924.
<i>aurata</i>	14 ¹⁾ $\frac{2}{2}$	CLELAND, 1928.
<i>auricula</i>		15 DE VRIES & BOEDIJN, 1923, 1924a; BOEDIJN, 1924b, 1925b.
<i>aurita</i>		15 DE VRIES & BOEDIJN, 1923, 1924b; BOEDIJN, 1925b.
<i>bienniformis</i>		14 VAN OVEREEM, 1922; BOEDIJN, 1925b.
<i>bipartita</i>		15 LUTZ, 1917a.
<i>blanda gigantea</i>		25 VAN OVEREEM, 1921, 1922.
<i>blandina</i>		14 BOEDIJN, 1920, 1924b, 1925b; DE VRIES & BOEDIJN 1923; DE VRIES & GATES, 1928; CLELAND, 1928, (1926), 1929.
	14 ²⁾ $\frac{2}{2}$	
<i>blandina gigantea</i>		24 VAN OVEREEM, 1921, 1922.
<i>brevistylis</i>		14 GATES & THOMAS, 1914; BOED- DIJN, 1925b; DE VRIES & GA- TES, 1928.
<i>cana</i>		15 VAN OVEREEM, 1921, 1922; DE VRIES & BOEDIJN, 1923, 1924a, b; BOEDIJN, 1924b, 1925a, b; DULFER, 1926; DE VRIES & GATES, 1928.
<i>candicans</i>		15 DE VRIES & BOEDIJN, 1923, 1924a; BOEDIJN, 1924b, 1925b.
<i>compacta</i>		14 BOEDIJN, 1920, 1924b, 1925b; DE VRIES & BOEDIJN, 1923.

¹⁾ Circles of 4 or 5, or one circle of 12 + 1 pair, or 1 circle of 10 + 2 pairs (CLELAND, 1928).

²⁾ Seven pairs (CLELAND, 1925, 1928, (1926) 1929).

OENOTHERACEAE (continued)			n	2n
<i>Oenothera Lamarckiana</i> Mutants (Continued)				
<i>curta</i>	15			HÅKANSSON, 1926b.
	$\frac{2}{2}$			
<i>decipiens</i>		14		BOEDIJN, 1920, 1924b, 1925b; DE VRIES & BOEDIJN, 1923; DE VRIES & GATES, 1928.
<i>delata</i>		15		DE VRIES & BOEDIJN, 1923, BOEDIJN, 1924b, 1925b.
<i>delicatula</i>		14		LUTZ, 1916.
<i>dentata</i>	15 ¹⁾			HÅKANSSON, 1926b.
	$\frac{2}{2}$			
<i>dependens</i>	15 ²⁾			HÅKANSSON, 1926b.
	$\frac{2}{2}$			
<i>deserens</i>		14		DE VRIES & BOEDIJN, 1923; BOEDIJN, 1924b; 1925b; DE VRIES & GATES, 1928.
	7 ³⁾			CLELAND, 1928, (1926) 1929.
<i>diluta</i>		15		BOEDIJN, 1924b, 1925b.
<i>distans</i>		15		DE VRIES & BOEDIJN, 1923; BOEDIJN, 1924b, 1925b.
<i>elongata</i>		14		BOEDIJN, 1920, 1924b, 1925b; DE VRIES & BOEDIJN, 1923.
<i>erythrina</i>		15		VAN OVEREEM, 1921.
		14		DE VRIES & BOEDIJN, 1923; BOEDIJN, 1924b, 1925b; DE VRIES & GATES, 1928.
	14 ⁴⁾			CLELAND 1928, (1926), 1929.
	$\frac{2}{2}$			
<i>excelsa</i>	21 ⁵⁾			HÅKANSSON, 1926b.
	$\frac{2}{2}$			
<i>exilis</i>		15		LUTZ, 1917a.
<i>exundans</i>		15		LUTZ, 1917a.
<i>favilla</i>		14		DE VRIES & BOEDIJN, 1923; BOEDIJN, 1924b.
<i>flava</i>		15		DE VRIES & BOEDIJN, 19233; BOEDIJN, 1924b, 1925b.
<i>flavescens</i>	14 ⁶⁾			HÅKANSSON, 1926b.
	$\frac{2}{2}$			

¹⁾ One pair & 1 or more chains (HÅKANSSON, 1926b).

²⁾ One pair & circle of 13 (HÅKANSSON, 1926).

³⁾ Seven pairs (CLELAND, 1925, 1928, (1926) 1929).

⁴⁾ Circle of 6 & 4 pairs (CLELAND, 1928, (1926) 1929).

⁵⁾ A trivalent group was often seen in diakinesis (HÅKANSSON, 1926b).

⁶⁾ Circle of 12 & 1 pair (HÅKANSSON, 1926b).

OENOTHERACEAE (continued) n 2n

Oenothera Lamarckiana Mutants (Continued)

<i>flavicura</i>	14 ¹⁾	RENNER, 1928.
	$\frac{2}{2}$	
<i>fragilis</i>	14	BOEDIJN, 1920, 1924 <i>b</i> , 1925 <i>b</i> ; DE VRIES & BOEDIJN, 1923.
<i>gigantea</i> (diploid)	14	HÅKANSSON, 1924 <i>b</i> .
	14 ²⁾	„ 1926 <i>b</i> .
	$\frac{2}{2}$	
„ (tetraploid)	28	„ 1924 <i>b</i> .
	14	„ 1926 <i>b</i> .
<i>gigas</i>	28 ³⁾	LUTZ, 1907, 1908; GATES, 1908 <i>a</i> , <i>b</i> , 1909 <i>c</i> , 1911, 1913 <i>a</i> , <i>b</i> , 1915 <i>a</i> , 1917 <i>b</i> ; GATES & THOMAS, 1914; DAVIS, 1911; DE VRIES, 1918 <i>a</i> ; STOMPS, 1912 <i>a</i> , 1916; VAN OVEREEM, 1921, 1922; BOEDIJN, 1924 <i>b</i> , 1925 <i>b</i> .
<i>gigas lata</i>	29	VAN OVEREEM, 1922; BOEDIJN, 1924 <i>c</i> .
<i>hamata</i>	15	DE VRIES & BOEDIJN, 1924 <i>a</i> ; BOEDIJN, 1924 <i>b</i> , 1925 <i>b</i> .
<i>incurvata</i>	15	GATES, 1915 <i>a</i> .
<i>lactuca</i>	15	VAN OVEREEM, 1921, 1922; DE VRIES, & BOEDIJN, 1923, 1924 <i>b</i> , 1925 <i>b</i> .
<i>laevifolia</i>	14	GATES, 1909 <i>a</i> .
<i>lancifolia</i>	14	DULFER, 1926.
<i>lata</i>	14, 15, 16	LUTZ, 1908.
	15	GATES, 1907 <i>a</i> . 1909 <i>b</i> , 1912; LUTZ, 1912; GATES & THO- MAS, 1914; VAN OVEREEM, 1922; DE VRIES & BOEDIJN, 1923, 1924 <i>a</i> ; BOEDIJN, 1924 <i>b</i> 1925 <i>b</i> ; DE VRIES & GATES. 1928.
	7-8	15 OELKERS, 1927.
<i>lata rubricalyx</i>	15	GATES & THOMAS, 1914.
<i>latescens</i>	16	GATES, 1915 <i>a</i> , <i>b</i> .
<i>latifrons</i>	14 ⁴⁾	CLELAND, 1928, (1926), 1929.

¹⁾ Circle of 12 & 1 pair (RENNER, 1928).²⁾ Circle of 12 & 1 pair (HÅKANSSON, 1926*b*).³⁾ Lutz, (1908) sometimes found 29 chromosomes.⁴⁾ Lacks circles [CLELAND (1926) 1929].

OENOTHERACEAE (continued) n 2n

Oenothera Lamarckiana Mutants (continued)

<i>linearis</i>	14	DE VRIES & BOEDIJN, 1923; BOEDIJN, 1924b.
<i>liquida</i>	15	VAN OVEREEM, 1921, 1922; DE VRIES & BOEDIJN, 1923, 1924a, b; BOEDIJN, 1924b, 1925b; DULFER, 1926.
<i>militaris</i>	14	DULFER, 1926.
<i>nanella</i>	14	GATES, 1908a; LUTZ, 1908; DE VRIES & BOEDIJN 1923; BOEDIJN, 1925b; DE VRIES & GATES, 1928.
<i>nanella lata</i>	15	LUTZ, 1917a.
<i>nitens</i>	15	DE VRIES & BOEDIJN, 1923, 1924a; BOEDIJN, 1924b, 1925b.
<i>oblonga</i>	14	LUTZ, 1908.
<i>oblonga</i>	14 or 15	LUTZ, 1917a.
	15 ¹⁾	DE VRIES, 1918a; VAN OVER- EEM, 1922; DE VRIES & BOEDIJN, 1923, 1924a, BOEDIJN, 1924b, 1925a, b; CLELAND, 1923, 1925, 1928, (1926) 1929; DE VRIES & GATES, 1928.
<i>obscura</i>	15 ²⁾ 2	HÅKANSSON, 1926b.
<i>pallidescens</i>	15	VAN OVEREEM, 1921, 1922; DE VRIES & BOEDIJN, 1923, 1924a, b; BOEDIJN, 1924b, 1925a, b; DE VRIES & GATES, 1928.
<i>pallida</i>	14	BOEDIJN, 1924b, 1925b; DE VRIES & GATES, 1928.
<i>perennis</i>	21	BOEDIJN, 1925b.
<i>persicaria</i>	15	DE VRIES & GATES, 1928.
<i>pervirens</i>	14 ³⁾	(ILLICK) given by SHULL, 1928.
<i>planifolia</i>	7 ⁴⁾	HÅKANSSON, 1926b.
<i>plicatula</i>	14	LUTZ, 1916.

¹⁾ Circles of 3 or chains of 4, 7, & 9 and the others pairs (CLELAND, 1928); variation in the number paired and unpaired (CLELAND (1926) 1929).

²⁾ Often circle of 12 & 1 pair (HÅKANSSON 1926b).

³⁾ Circle of 12 + 1 pair, or 7 pairs (ILLICK, given by SHULL, 1928).

⁴⁾ Circle of 11 + 1 pair (HÅKANSSON, 1926b).

OENOTHERACEAE (continued)	n	2n	
<i>Oenothera Lamarckiana</i> Mutants (continued)			
<i>problandina</i>		14	DE VRIES & BOEDIJN, 1923; 1923; BOEDIJN, 1924b; DE VRIES & GATES, 1928.
„pseudo gigas”		14	STOMPS, 1916
<i>pulla</i>		15	DE VRIES & BOEDIJN, 1924a; BOEDIJN, 1924b, 1925a, b; DULFER, 1926; DE VRIES & GATES, 1928.
<i>quadrata</i>		21	DE VRIES & GATES, 1928.
<i>recurrens</i>		14	BOEDIJN, 1924b, 1925b.
<i>rubricalyx</i>		14 ¹⁾	GATES & THOMAS, 1914; GATES 1915a; DE VRIES & BOEDIJN, 1923; CLELAND, 1925, 1928, (1926)1929; BOEDIJN, 1925b; DE VRIES & GATES; 1928, SHEFFIELD, 1927.
<i>rubricalyx rubicunda</i>		14	BOEDIJN, 1925b.
<i>rubricalyx tenella</i>		15	BOEDIJN, 1925b.
<i>rubrinervis</i>		14	GATES, 1908a, c; DE VRIES & BOEDIJN, 1923; BOEDIJN, 1924b, 1925b; DULFER, 1926; DE VRIES & GATES, 1928.
		14 +	
			fragment LUTZ, 1916a.
	14 ²⁾		CLELAND, 1925, 1928, (1926)
	$\frac{2}{2}$		1929.
<i>rubrisepala</i>	14 ³⁾		HÅKANSSON, 1926b.
	$\frac{2}{2}$		
<i>scindens</i>		14	DE VRIES & BOEDIJN, 1923.
<i>scintillans</i>		15	HANCE, 1918; VAN OVEREEM, 15 1922; DE VRIES & BOEDIJN, 1923, 1924a; BOEDIJN, 1924b, 1925b; DE VRIES & GATES, 1928.
<i>secunda</i>		14	BOEDIJN, 1920, 1924b, 1925b; DE VRIES & BOEDIJN, 1923.
<i>secunda lata</i>		15	” ”
<i>semigigas</i>		21	GEERTS, 1911; STOMPS, 1912a; LUTZ, 1912; GATES, 1915a; VAN OVEREEM, 1922; DE

¹⁾ Circle of 8 + 3 pairs (CLELAND, 1925, 1928 (1926) 1929), circle of 6 + 4 pairs (SHEFFIELD, 1927).

²⁾ Circle of 6 + 4 pairs (CLELAND, 1925, 1928, (1926) 1929).

³⁾ Circle of 6 + 4 pairs (HÅKANSSON, 1926b).

OENOTHERACEAE (continued) n 2n

Oenothera Lamarckiana Mutants (Continued)

			VRIES & BOEDIJN, 1924a, b; BOEDIJN, 1925b; DE VRIES & GATES, 1928.
<i>semi-gigas cana</i>	15		DE VRIES, 1955b.
<i>semi-gigas hamata</i>	15	" "	"
<i>semi-gigas liquida</i>	15	" "	"
<i>semi-gigas pulla</i>	15	" "	"
<i>semi-gigas scintillans</i>	15	" "	"
<i>semi-gigas spathulata</i>	15	" "	"
<i>semilata</i>	15		GATES, 1913b, GATES & THO- MAS, 1914; DE VRIES & BOE- DIJN, 1923; BOEDIJN, 1924b, 1925b.
<i>spathulata</i>	15		DE VRIES & BOEDIJN, 1923, 1924a; BOEDIJN, 1924b, 1925a, b; DE VRIES & GATES, 1928; DULFER, 1926.
<i>stricta</i>	15		HÅKANSSON, 1926b.
<i>sublinearis</i>	15		DE VRIES & BOEDIJN, 1923, BOEDIJN, 1924b.
<i>subovata</i>	15		LUTZ, 1917a; DE VRIES & BOE- DIJN, 1923; BOEDIJN, 1924b.
<i>tarda</i>	14		BOEDIJN, 1920, 1924b, 1925b; DE VRIES & BOEDIJN, 1923; DE VRIES & GATES, 1928.
<i>tardescens</i>	15		BOEDIJN, 1924b.
<i>tripartita</i>	15 3		fragments DULFER, 1926.
<i>vixifolia</i>	15		VAN OVEREEM, 1921.
<i>de Vriesii</i>	15		VAN OVEREEM, 1921, 1922.
<i>mutant sulfurea</i>	14 ¹⁾		CLELAND, (1926) 1929.
	$\frac{2}{2}$		
<i>mutant 1926.41.2</i>	6-9	15	MICHAELIS, 1928.
<i>mutant 1926.101.a</i>	7-8		" "
<i>Oenothera Lamarckiana simplex</i>		14	BOEDIJN, 1920, 1924b, 1925b; DE VRIES, 1923a; DE VRIES & BOEDIJN, 1923.
„ <i>Lamarckiana simplex</i>			
<i>albida</i>		15	DE VRIES, 1923.
„ <i>Lamarckiana simplex</i>		14	
<i>compacta</i>			DE VRIES, 1923; BOEDIJN, 1925b.

¹⁾ Circle of 4 (CLELAND (1926) 1929).

OENOTHERACEAE (continued)	n	2n
<i>Oenothera</i> (continued)		
<i>Oenothera Lamarckiana simplex</i>		
<i>deserens</i>	14	BOEDIJN, 1920, 1924b, 1925b; DE VRIES, 1923; DE VRIES & BOEDIJN, 1923.
" <i>Lamarckiana simplex</i>		
<i>elongata</i>	14	DE VRIES, 1923; BOEDIJN, 1925b.
" <i>Lamarckiana simplex</i>		
<i>favilla</i>	14	DE VRIES, 1923.
" <i>Lamarckiana simplex</i>		
<i>fragilis</i>	14	" " "
" <i>Lamarckiana simplex</i>		
<i>linearis</i>	14	BOEDIJN, 1920, 1924b, 1925b; DE VRIES, 1923; DE VRIES & BOEDIJN, 1923.
" <i>Lamarckiana simplex</i>		
<i>lata</i>	15	BOEDIJN, 1920, 1925b; VAN OVEREEM, 1922; DE VRIES, 1923.
" <i>Lamarckiana simplex</i>		
<i>nanella</i>	14	BOEDIJN, 1920, 1924b, 1925b; DE VRIES, 1923; DE VRIES & BOEDIJN, 1923.
" <i>Lamarckiana simplex</i>		
<i>nanella duplex</i> = (<i>O.</i> <i>simplex</i> mut. <i>gigas</i>).	28	BOEDIJN, 1920, 1925b; DE VRIES, 1923.
" <i>Lamarckiana simplex</i>		
<i>secunda lata</i>	15	DE VRIES, 1923.
" <i>Lamarckiana simplex</i>		
<i>semigigas</i>	21	BOEDIJN, 1920, 1925b; DE VRIES, 1923.
" <i>longiflora</i>	7	BEER, 1906; BOEDIJN, 1925.
" <i>Millersi</i>	7	14 STOMPS, 1912a.
" <i>mollissima</i>	7	SCHWEMMLE, 1927.
" <i>muricata</i> L.	14	STOMPS, 1912a; RENNER, 1914; BOEDIJN, 1924a, 1925b.
	14. ¹⁾	CLELAND, 1923, 1925, 1926b,
	$\frac{2}{2}$	1928, (1926), 1929.
" <i>novae scotiae</i>	14. ²⁾	SHEFFIELD, 1927.
	$\frac{2}{2}$	

¹⁾ Circle of 14 (CLELAND, 1925, 1928, (1926) 1929).²⁾ Circle of 14 (SHEFFIELD, 1927).

OENOTHERACEAE (continued)	n	2n	
<i>Oenothera</i> (continued).			
<i>Oenothera nultans</i>	7	14	ISHIKAWA 1918.
„ <i>odorata</i>	7		SCHWEMMLE, 1927.
„ <i>pratincola</i>		14	BARTLETT, 1925b.
„ <i>pratincola</i> var. <i>gigas</i> .		28	(ARZBERGER) given by BARTLETT, 1915b.
„ <i>pratincola</i> mut. <i>nummularia</i>		14	BARTLETT, 1916.
„ <i>pumila</i>	14		VALCANOVER, 1926.
„ <i>pyncocarpa</i>	7	14	ISHIKAWA, 1918.
„ <i>rosea</i>	14 ¹⁾		SCHWEMMLE, 1924b.
	$\frac{2}{2}$		
„ <i>sinuata</i> L.	7	14	SINOTO, 1927.
„ <i>strigosa</i>	14 ²⁾		OELKERS, 1926.
	$\frac{2}{2}$		
„ <i>suaveolens</i> DESF. . .	14 ³⁾		DE VRIES, 1918a, b, OELKERS,
	$\frac{2}{2}$		
			1923, 1926, CLELAND, 1928.
		14	BOEDIJN, 1924a, 1925b.
„ <i>suaveolens lata</i> . . .		15	DE VRIES, 1918b; VAN OVEREEM, 1922.
„ <i>suaveolens jaculatrix</i> .		15	DE VRIES, 1918b.
„ „heterozygous form”	14 ⁴⁾		CLELAND, (1926) 1929.
	$\frac{2}{2}$		
„ (diverse forms) . . .		14	GREGOIRE, 1912.
<i>Oenothera</i> Hybrids:			
<i>Oenothera aurata</i> × <i>latifrons</i> .	14 ⁵⁾		CLELAND, 1928.
	$\frac{2}{2}$		
„ <i>Berteriana</i> × <i>Odo-rata</i>	14 ⁶⁾		SCHWEMMLE, 1928.
	$\frac{2}{2}$		
„ <i>Berteriana</i> × <i>O. odorata</i> F ₂	14(?)		„ ”
„ <i>biennis</i> × <i>O. Hookeri</i>	14 ⁷⁾	14 ⁸⁾	CLELAND, 1928.
	$\frac{2}{2}$		

¹⁾ Chain of 14 (SCHWEMMLE, 1924b).

²⁾ Circle of 12 or 14 (OELKERS, 1926).

³⁾ Circle of 12 or 14 (OELKERS, 1926); circle of 12 + 1 pair (CLELAND, 1928).

⁴⁾ Circle of 10 or 12 (CLELAND, (1926) 1929).

⁵⁾ Circle of 4 + 5 pairs or circle of 6 + 4 pairs (CLELAND, 1928).

⁶⁾ In the F₂ generation of this cross plants appeared having branches that were tetraploid and by close pollination of flowers on these, seeds were obtained that gave rise to two gigas forms. (SCHWEMMLE, 1928), considers that these two gigas.

⁷⁾ plants have the tetraploid chromosome number.

⁸⁾ Circle of 10 + 2 pairs in „*rubefacta*” plants and circle of 14 in „*albata*” plants (CLELAND, 1928).

OENOTHERACEAE (continued)	n	2n	
<i>Oenothera</i> Hybrids (Continued):			
<i>Oenothera biennis</i> × <i>O. Lamarckiana</i>		14	RENNER, 1914.
„ <i>biennis</i> × <i>O. muricata</i>	14 ¹⁾ $\frac{14}{2}$		RENNER, 1914; CLELAND, 1928 ²⁾
„ <i>biennis</i> × <i>O. suaveolens</i>	14 ²⁾ $\frac{14}{2}$		CLELAND, 1928.
„ <i>biennis semigigas</i> × × <i>O. Lamarckiana</i> .		95	VAN OVEREEM, 1921.
„ <i>biennis semigigas</i> × <i>O. Lamarckiana gigas</i>		23 36	„ „ „ „ „ „
„ <i>franciscana</i> × <i>O. grandiflora</i>	14 ³⁾ $\frac{14}{2}$		CLELAND, 1928.
„ <i>franciscana sulturea</i> × <i>latifrons</i>	14 ⁴⁾ $\frac{14}{2}$	14	CLELAND, 1928.
„ <i>grandiflora</i> × <i>franciscana</i>	14 ³⁾ $\frac{14}{2}$		„ „
„ <i>grandiflora</i> × <i>mut. sulturea</i>	14 ⁵⁾ $\frac{14}{2}$		„ „ (1926) 1929.
„ <i>grandiflora</i> var. <i>lorea</i> × <i>O. Lamarckiana</i> .		24	DE VRIES, 1918a.
„ <i>Hookeri</i> × <i>O. suaveolens</i>		14 ³⁾	CLELAND, 1928.
„ <i>Lamarckiana</i> × <i>O. biennis</i>		14	RENNER, 1914.
„ <i>Lamarckiana</i> × <i>O. biennis</i> (= <i>O. lax</i>)	14 ⁶⁾ $\frac{14}{2}$		HÅKANSSON, 1926b.

¹⁾ Circle of 4 + circle of 6 + 2 pairs (CLELAND, 1928).

²⁾ Circle of 12 + 1 pair (CLELAND, 1928).

³⁾ Circle of 4 + 5 pairs (CLELAND, 1928).

⁴⁾ Circle of 6 + 4 pairs (CLELAND, 1928).

⁵⁾ Circle of 6 + 4 pairs or no circle (CLELAND, 1928, (1926) 1929).

⁶⁾ As in *O. Lamarckiana*, circle of 12 + 1 pair (HÅKANSSON, 1926b). In one loculus of an anther was found a small group of pollen-mother-cells which were tetraploid.

OENOTHERACEAE (continued)	n	2n	
<i>Oenothera</i> (continued)			
<i>Oenothera Lamarckiana</i> × <i>O.</i>			
<i>atrovirens semigigas</i>		24-28	STOMPS, 1916
<i>Lamarckiana</i> × <i>O.</i>			
<i>cruciata</i>		21	GATES, 1915b,
<i>Lamarckiana</i> × <i>O.</i>			
<i>Millersi</i>		21	" "
<i>Lamarckiana</i> × <i>O.</i>			
<i>muricata</i>		21	" "
<i>Lamarckiana</i> × <i>O.</i>			
<i>syrticola semigigas</i> .		24	STOMPS, 1916b.
<i>Lamarckiana gigas</i> ×			
<i>O. atrovirens</i> SHULL			
& BARTLETT (<i>O. cru-</i>			
<i>ciata</i> NUTT)		21, 28 ¹⁾	STOMPS, 1916.
<i>Lamarckiana gigas</i> ×			
<i>O. Lamarckiana</i> . .	7+7 ₁		GEERTS, 1911.
<i>Lamarckiana gigas</i> ×			
<i>O. Lamarckiana</i> F ₂ .		14	" "
(<i>lata</i> × <i>Lamarckiana</i>			
<i>semi-gigas</i>		21	BOEDIJN, 1925b.
(<i>lata</i> × <i>gigas</i>) . . .	10, 11	21	" "
(<i>Lamarckiana</i> × <i>O.</i>			
<i>grandiflora gigas</i>) <i>gi-</i>			
<i>gas</i>		28	" 1924c, 1925b.
(<i>Lamarckiana lata</i> ×			
<i>Lamarckiana</i>) <i>semi-</i>			
<i>gigas mutant deute-</i>			
<i>rogigas</i>		28	" "
(<i>lorca</i> × <i>O. Lamarck-</i>			
<i>iana</i>)		28.	" " 1925b.
(<i>simplex</i> × <i>O. Bien-</i>			
<i>nis Chicago</i>) <i>gigas</i> .		28	" " "
<i>mut. sulfurea</i> × <i>O.</i>			
<i>grandiflora</i>	14 ²⁾		CLELAND, 1923.
	$\frac{2}{2}$		
(<i>suaveolens</i> × <i>O. stri-</i>			
<i>gosa</i>) <i>flava</i>	7 ³⁾		OELKERS, 1926.
(<i>suaveolens</i> × <i>O.</i>			
<i>strigosa</i>) <i>albata</i> . .	14 ⁴⁾		" "
	$\frac{2}{2}$		

¹⁾ One plant showed 28 chromosomes.²⁾ Circle of 6 + 4 pairs or no circle (CLELAND, 1928, (1926) 1929).³⁾ In both F₁ and F₂ plants the chromosomes appeared paired in diakinesis.⁴⁾ In both F₁ and F₂ plants the chromosomes appeared as one pair and two chains of the others.

OENOTHERACEAE (continued)	n	2n	
<i>Oenothera</i> (continued)			
<i>Oenothera Lamarckiana</i> biennis			
× <i>O. suaveolens</i>	14 ¹⁾		CLELAND, 1928.
	$\frac{2}{2}$		
„ <i>Berteriana</i> × <i>onagra</i>			
<i>muricata</i>	7		SCHWEMMLE, 1927.
Progeny of <i>Oenothera Lamarckiana</i> semigigas × <i>O. (biennis</i> × <i>Lamarckiana)</i> <i>velutina</i> :			
<i>Oenothera Lamarckiana</i>	14		BOEDIJN, 1925b.
„ <i>Lamarckiana auricula</i>	15, 17	„	„
„ <i>Lamarckiana cana</i>	15, 16, 17, 19, 20	„	„
„ <i>Lamarckiana candelicans</i>	16	„	„
„ <i>Lamarckiana dorycarpa</i>	15	„	„
„ <i>Lamarckiana euryphylla</i>	15	„	„
„ <i>Lamarckiana hamata</i>	20	„	„
„ <i>Lamarckiana lata</i>	15	„	„
„ <i>Lamarckiana ligulata</i>	15, 16	„	„
„ <i>Lamarckiana oblonsa</i>	15	„	„
„ <i>Lamarckiana pallescens</i> . ×	15, 16, 17, 19, 20	„	„
„ <i>Lamarckiana pulla</i>	15, 16, 17		
„ <i>Lamarckiana scintillans</i>	15, 16, 17, 18, 19	„	„
„ <i>Lamarckiana spathulata</i>	15, 16, 17, 18	„	„
Progeny of <i>Oenothera Lamarckiana</i> semigigas × <i>O. decipiens</i> .			
<i>Oenothera Lamarckiana</i>	14		BOEDIJN, 1925b.
„ <i>Lamarckiana auricula</i>	15	„	„
„ <i>Lamarckiana cana</i>	15, 16, 17, 18, 19	„	„
„ <i>Lamarckiana Ligula</i>	15, 19, 20, 21	„	„
„ <i>Lamarckiana ligulata</i>	15, 16, 20	„	„

¹⁾ Circle of 12 + 1 pair (CLELAND, 1928).

OENOTHERACEAE (continued)	n	2n	
Progeny of <i>Oenothera Lamarckiana semigigas</i> × <i>O. decipiens</i> (continued)			
<i>Oenothera Lamarckiana oblonga</i>		15	BOEDIJN, 1925b
„ <i>Lamarckiana pallescens</i>		15, 16	„ „
„ <i>Lamarckiana pulla</i>		15, 19	„ „
„ <i>Lamarckiana scintillans</i>		15, 18, 19	„ „
„ <i>Lamarckiana spathulata</i>		15, 16, 17, 18, 19	„ „
Progeny of <i>Oenothera Lamarckiana</i> × (<i>O. biennis</i> × <i>Lamarckiana</i>) <i>velutina cana</i> (2n = 16):			
<i>cana</i>		15	BOEDIJN, 1925b.
<i>cana nanella</i>		15	„ „
<i>Lamarckiana</i>		14	„ „
<i>liquida</i>		15	„ „
<i>liquida nanella</i>		15	„ „
<i>oblonga</i>		15	„ „
<i>pulla</i>		15	„ „
<i>spathulata</i>		15	„ „
Progeny of <i>Oenothera L. semigigas</i> × (<i>O. biennis</i> × <i>Lamarckiana</i>) <i>velutina pulla</i> (2n = 17):			
<i>cana</i>		15	BOEDIJN, 1925b.
<i>Lamarckiana</i>		14	„ „
<i>liquida</i>		15	„ „
<i>oblonga</i>		15	„ „
<i>pallescens</i>		15	„ „
<i>pulla</i>			
Progeny of <i>Oenothera L. semigigas</i> (<i>O. biennis</i> × <i>Lamarckiana</i>) <i>velutina euryphylla</i> (2n = 20):			
Plants with 17, 19, 23, 24, 26, 27 chromosomes			BOEDIJN, 1925b.
Progeny of <i>Oenothera L. semigigas</i> × (<i>biennis</i> × <i>Lamarckiana</i>) <i>velutina pallescens</i> (2n = 20):			
<i>Blandina</i>		15	BOEDIJN, 1925b.
<i>Blandina</i> (abnormal)		15	„ „
<i>Pallescens</i>		15	„ „

OENOTHERACEAE (continued)

Progeny of *Oenothera L. semigigas* × (*biennis* × *Lamarckiana*) *velutina alata* ($2n = 26$):

Plants with 26, 27, 28 chromosomes.

BOEDIJN, 1925b.

Progeny of *Oenothera Lamarckiana semigigas* × *O. (muricata* × *Lamarckiana)* *velutina*:

Central Group:

<i>Oenothera Euryphylla</i>	20	DULFER, 1926.
„ <i>glabra</i>	16	„ „
„ <i>Lamarckiana</i>	14	„ „
„ <i>pulla</i>	15	„ „
„ „Nebenformen”	16	„ „

Lata Group:

<i>Latifolia</i>	16	DULFER, 1926.
<i>Synedra</i>	16	„ „
(„weitere Nebenformen”). . .	16, 17	„ „

Scintillans Group:

<i>Oenothera acuminata</i>	17, 18	DULFER, 1926.
„ <i>hastata</i>	16, 17	„ „
„ <i>lambrophylla</i>	17	„ „
„ <i>lancifolia</i>	17	„ „
„ <i>linearis</i>	15, 16, 18,	
	20	„ „
„ <i>militaris</i>	16, 17	„ 1926
„ („weitere Nebenformen”)	17, 19	„ „

Cana Group:

<i>Oenothera angustifolia</i>	17, 18	DULFER, 1926.
„ <i>cana</i>	15	„ „
„ <i>cana B</i>	16	„ „
„ <i>depilis</i>	16	„ „
„ <i>opaca</i>	15	„ „
„ („weitere Nebenformen”)	15, 17	„ „

Liquida Group:

<i>Oenothera cucumis</i>	15	„ „
„ <i>lingua</i>	16	„ „
„ <i>plana</i>	15	„ „
<i>Oenothera</i> („weitere Nebenformen”)	16	DULFER, 1926.

Spatulata Group:

<i>Oenothera chlorina</i>	17	„ „
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OENOTHERACEAE (continued)	n	2n	
Progeny of <i>Oenothera Lamarckiana</i> <i>semigigas</i> × <i>O. (muricata)</i> × <i>Lamarckiana</i> <i>velutina</i> (continued):			
<i>Oenothera cochleata</i>		16	DULFER, 1926
„ <i>dentata</i>		16	„ „
„ <i>hamata</i>		15	„ „
„ <i>orbicularis</i>	16, 17, 18	„	„
„ <i>rotunda</i>	16, 17, 18	„	„
„ <i>spathulata</i>	15, 16	„	„
„ <i>spathulata</i> B	16, 17	„	„
„ <i>spathulata</i> Y	17, 18, 19	„	„
„ <i>spathulata</i> B	17, 16	„	„
„ („weitere Nebenformen“)	17, 18	„	„
<i>Pallescens</i> Group:			
<i>Oenothera pallescens</i>		15	„ „
„ („Nebenform“)		18	DULFER, 1926.
Individuals which did not bloom (from same series):			
<i>Oenothera glabra</i>		16	DULFER, 1926.
„ <i>latifolia</i>		16	„ „
„ („andere Nebenformen“)		17	„ „
„ <i>acuminata</i>	17, 18	„	„
„ <i>Hastata</i>	17	„	„
„ <i>lamprophylla</i>	17	„	„
„ <i>lancifolia</i>	17	„	„
„ <i>linearis</i>	15, 18, 20	„	„
„ („andere Nebenformen“)		19	„ „
„ <i>depilis</i>		16	„ „
„ <i>orbicularis</i>	17, 18	„	„
„ <i>rotunda</i>	16, 17, 18	„	„
<i>Eucharidium concinnum</i>	7 ¹⁾		SCHWEMMLE, 1926.
<i>Godetia amoena</i>	7		HÅKANSSON, 1925; CHITTENDEN, 1928.
„ <i>Bottae</i>	9		HÅKANSSON, 1925; CHITTENDEN, 1928.
(<i>Godetia lepida</i>	21		HÅKANSSON, 1925.
	26		CHITTENDEN, 1928.
„ <i>tenella</i>	16		„

¹⁾ In diakinesis the chromosomes appear in ring pairs.

OENOTHERACEAE (continued)		n	2n	
<i>Godetia</i> (continued)				
<i>Godetia Whitneyi</i>		7		WINGE, 1925; HÅKANSSON, 1925; CHITTENDEN, 1928.
„ <i>amoena</i> × <i>G. Whitneyi</i>				
F ₁			14	HÅKANSSON, 1925.
			14-16	CHITTENDEN, 1928.
„ <i>amoena</i> × <i>G. Whitneyi</i>				
F ₂			14-17	„ „
„ <i>Bottae</i> × <i>G. tenella</i>) ×				
<i>G. tenella</i>) × <i>G. tenella</i>			30	„ „
„ <i>Bottae</i> × <i>G. tenella</i>) ×				
<i>G. Bottae</i>			24-28	„ „
HALORRHAGACEAE				
<i>Gunnera chilensis</i>	ca. 12			MODILEWSKI, 1908; WINGE, 1917.
„ <i>macrophylla</i> Bl.	ca. 12			SAMUELS, 1912.
HIPPURIDACEAE				
<i>Hippuris vulgaris</i>	ca. 16			JUEL, 1911.
	16			WINGE, 1927.
CYNOMORIACEAE				
<i>Cynomorium coccineum</i>	12			JUEL, 1903b.
UMBELLIFLORAE				
ARALIACEAE				
<i>Hedera helix conglomerata</i>	43-47			OEHM, 1924 ¹⁾ .
„ <i>helix typica</i>	44-49			„ „
„ <i>helix hibernica</i>	89-98			„ „
UMBELLIFERAE				
<i>Anthriscus silvestris</i> (L.)				
HOFFM.	7-8			PETERSEN, 1914.
„ <i>silvester</i>	8			WINGE, 1917.
<i>Aegopodium podagraria</i>	ca. 20			„ „
<i>Pastinaca sativa</i> L.	probably			
	8			BEGHTEL, 1925.
CORNACEAE				
<i>Cornus candidissima</i>	8-9			WINGE, 1917.
„ <i>glabrata</i>	11-12			„ „
<i>Aucuba japonica</i>	47			(SAKAMURA, 1916) given by ISHIKAWA, 1916.
	18 ²⁾		36 ³⁾	PALM & RUTGERS, 1917.
<i>Aucuba japonica</i> THUNB.	16			SUGIURA, 1927.

¹⁾ In previous list GAISER (1926) this was erroneously given 1923.

²⁾ Seventeen chromosomes were found in one case.

³⁾ In one division figure in the endosperm 48 chromosomes could be clearly counted.

	n	2n
DIAPENSIALES		
DIAPENSIACEAE		
<i>Diapensia lapponica</i>	6 ¹⁾	SAMUELSON, 1913.
„ <i>lapponica</i> L.	6	HAGERUP, 1918.
ERICALES		
CLETHRACEAE .		
<i>Clethra alnifolia</i> L.	16	HAGERUP, 1928.
„ <i>arborea</i> AIT.	8	„ „
PYROLACEAE		
<i>Pyrola chlorantha</i>	16	SAMUELSON, 1913.
„ <i>grandiflora</i> (RADDI)	23	HAGERUP, 1928.
„ <i>media</i> probably	16+	SAMUELSON, 1913.
„ <i>minor</i> L.	23	HAGERUP, 1928.
„ <i>rotundifolia</i>	16	SAMUELSON, 1913.
„ <i>rotundifolia</i> L.	23	HAGERUP, 1928.
„ <i>uniflora</i>	16	SAMUELSON, 1913.
ERICACEAE		
<i>Ledum groenlandicum</i> OED.	13	HAGERUP, 1928
<i>Rhododendron lapponicum</i>		
WAHLBG.	13	„ „
<i>Leiophyllum buxifolium</i> ELL.	12	„ „
<i>Loiseleuria procumbens</i> (L.)		
DESVAUX.	12	„ „
<i>Kalmia glauca</i> AIT.	24	„ „
„ <i>latifolia</i> L.	12	„ „
<i>Phyllodoce coerulea</i> (L.) GREN		
& GODR.	6	„ „
<i>Cassiope hypnoides</i> L.	24(?)	„ „
<i>Andromeda polifolia</i> L.	24	„ „
<i>Gaultheria shallon</i> PURSH.	48	„ „
<i>Arbutus andrachne</i> L.	13	„ „
„ <i>canariensis</i> DUHAM.	13	„ „
<i>Arctostaphylos diversifolia</i>		
PARRY	13	„ „
<i>Arctostaphylos uva-ursi</i> (L.)		
SPR.	26	„ „
<i>Gaylussacia baccata</i>	12	LONGLEY, 1927c.
<i>Oxycoccus palustris</i> PERS.	36	HAGERUP, 1928.
<i>Vaccinium angustifolium</i> ²⁾	24	LONGLEY, 1927c.
„ <i>atrococcum</i>	12	„ „

¹⁾ The nuclei of the endosperm contained 18 chromosomes.

²⁾ Plants from two different localities were studied.

ERICACEAE (continued)	n	2n	
<i>Vaccinium</i> (continued)			
<i>Vaccinium canadense</i>	12		LONGLEY, 1927c.
„ <i>canadense</i> (albino)	12		„ „
„ <i>corymbosum</i> ¹⁾	24		„ „
„ <i>hirsutum</i>	24		„ „
„ <i>pallidum</i>	36		„ „
„ <i>vacillans</i>	12		„ „
„ <i>vacillans</i> (albino)	12		„ „
„ <i>virgatum</i>	36		„ „
„ <i>vitis-idaea</i> L.	12		HAGERUP, 1923.
„ <i>angustifolium</i> × <i>V.</i> <i>hirsutum</i>	24		LONGLEY, 1927c.
„ <i>angustifolium</i> × <i>V.</i> <i>myrsinites</i>	24		„ „
(„ <i>angustifolium</i> × <i>V.</i> <i>myrsinites</i>) × <i>V.</i> <i>corymbosum</i>	24.		„ „
„ <i>corymbosum</i> × <i>V.</i> <i>corymbosum</i> (an- ther form).	24		„ „
„ <i>corymbosum</i> × <i>V.</i> <i>virgatum</i>	30 ²⁾		„ „
<i>Calluna vulgaris</i> SALISB. var. <i>pubescens</i> KOCH.	8		HAGERUP, 1923.
<i>Erica arborea</i> L.	12		„ „
„ <i>carnea</i> L.	12		„ „
„ <i>cinerea</i> L.	12		„ „
„ <i>hiemalis</i> hort. angl.	12		„ „
„ <i>tetralix</i> L.	12		„ „
<i>Polycodium stamineum</i>	12		LONGLEY, 1927c.
<i>Bruckenthalia spiculiflora</i> RCHB.	18		HAGERUP, 1923.
EPACRIDACEAE			
<i>Epacris impressa</i>	13		SAMUELSON, 1913.
PRIMULALES			
MYRSINACEAE			
<i>Ardisia crispa</i>	23		DAHLGREN, 1916.
<i>Primula</i> (diverse forms)		18	GRÉGOIRE, 1912.
„ <i>acaulis</i>		22	CHITTENDEN, 1923.
„ <i>auricula</i>	27		MARCHAL, 1920; VOKOLEK, 1925.

¹⁾ Plants from three different localities were studied.

²⁾ Reduction divisions were very irregular and only occasionally were the chromosomes paired.

PRIMULACEAE (continued)	n	2n	
<i>Primula</i> (continued)			
<i>Primula auricula</i> L.	30-36	72	ERNST & MOSER, 1925; MOSER, 1926.
„ <i>floribunda</i>	9		DIGBY, 1912; DAHLGREN, 1916
„ <i>hirsuta</i>	27	54	VOKOLEK, 1925.
„ <i>hirsuta</i> ALL.	30-36	72	ERNST & MOSER, 1925.
	33-36	72	MOSER, 1926.
„ <i>japonica</i>	22		INUMA, 1926.
„ <i>Juliae</i>		22	CHITTENDEN, 1928.
„ <i>Kewensis</i> (<i>P. floribunda</i> × <i>verticillata</i>) (sterile)	9	18	DIGBY, 1912.
„ <i>Kewensis</i> (fertile)	18	36	DIGBY, 1912; DAHLGREN, 1916; PELLEW & DURHAM, 1915.
		36	HEITZ, 1926.
„ <i>Kewensis</i> (farinosa)	18	36	DIGBY, 1912.
„ <i>malacoides</i>	9		SUGIURA, 1923a.
„ <i>modesta</i> var. <i>Fauriae</i>	9		INUMA, 1926.
„ <i>nipponica</i>		22	„ „
„ <i>officinalis</i>	11		MARCHAL, 1920.
	11	22	DAHLGREN, 1916.
„ <i>Reinii</i>		24	INUMA, 1916.
„ <i>Sieboldii</i>	12		„ „
		24	ONO, 1927a.
„ <i>Sieboldii</i> var. <i>Awobanofue</i>		24	INUMA, 1926.
„ <i>Sieboldii</i> var. <i>Edasango</i>		24	„ „
„ <i>Sieboldii</i> var. <i>Hahanoi</i>		24	„ „
„ <i>Sieboldii</i> var. <i>Hatsuhinode</i>		24	„ „
„ <i>Sieboldii</i> var. <i>Hiryu</i>		24	„ „
„ <i>Sieboldii</i> var. <i>Kokiden</i>			
„ <i>Sieboldii</i> var. <i>Kurozomegawa</i>		24	„ „
„ <i>Sieboldii</i> var. <i>Makinowo</i>		24	„ „
„ <i>Sieboldii</i> var. <i>Mitanohikari</i>		24	„ „
„ <i>Sieboldii</i> var. <i>Nuresagi</i>		36	„ „
„ <i>Sieboldii</i> var. <i>Sasononami</i>		36	INUMA, 1926.
	12 ₃ ¹⁾		ONO, 1927a.

¹⁾ In diakinesis of pollen-mother-cells 12 trivalents occurred.

PRIMULACEAE (continued)

n

2n

Primula (continued)*Primula Sieboldii* var. *Shiro-**washi*

36

IINUMA, 1926

„ *Sieboldii* var. *Suibijin*

24

„ „

„ *Sieboldii* var. *Uchiu* .

24

„ „

„ *sinensis*

12

24

GRÉGORY, 1909; KEEBLE,
1912; DE WINTON, 1928.

12 & 24

„ *sinensis* (*gigas*) . . .

12

24

VOKOLEK, 1925.

GRÉGORY, 1909; KEEBLE, 1912.

„ *verticillata*

24

48

GRÉGORY, 1914.

„ *acaulis* × *P. Juliae* .

9

DIGBY, 1912.

„ *auricula* × *P. hirsuta*

11

22

CHITTENDEN, 1928

„ (= *P. pubescens*) . .

27

VOKOLEK, 1925.

„ *auricula* × *P. hirsuta*ALL. (= *P. pubescens*

JACQ.)

32-36

MOSER, 1926; ERNST & MOSER,

1928.
CHITTENDEN, 1928.„ *elatior* × *P. Juliae* .

11

22

CHITTENDEN, 1928.

„ *floribunda isabellina*× *P. Kewensis* (sterile)

9

18

DIGBY, 1912.

„ *floribunda isabellina*× *P. Kewensis* (fertile)

9

18

„ „

„ *hirsuta* × *P. auricula*

36-36

72

ERNST & MOSER, 1925.

„ *officinalis* × *P. acau-**lis*

22

CHITTENDEN, 1928.

„ *polyanthus* Cloth ofGold × *P. Juliae* .

11

„ „

Androsace septentrionalis . . .

10

DAHLGREN, 1916.

Cyclamen africanum

32-36

HEITZ, 1926.

„ *cilicicum*

ca. 28-32

„ „

„ *corum*

14

„ „

„ *europaeum*

(28)-32

„ „

„ *graeum*

68-78

HEITZ, 1926

„ *persicum*

48

„ „

„ *persicum* cult. hort.(*gigas*)

42-44

ca. 88

„ „

„ *pseudograecum* . . .

28

„ „

Lysimachia thyrsiflora

ca. 20

DAHLGREN, 1916.

PLUMBAGINALES

PLUMBAGINACEAE

Plumbago capensis

14

DAHLGREN, 1916.

EBENALES	n	2n	
EBENACEAE			
<i>Diospyros Kaki</i> ¹⁾	(27)-28		YASUI, 1915.
<i>Diospyros Kaki</i> var. <i>E. Goshō</i>	45		NAMIKAWA and HIGASHI, 1928.
var. <i>Kurokama</i>	45		" " " "
var. <i>Nara-</i>			
<i>Goshō</i>	45		" " " "
var. <i>Shōgatsu</i>	45		" " " "
var. <i>Tenji</i> ²⁾	45		" " " "
Seedlings of			
<i>Anzai</i>		90	" " " "
Seedlings of			
<i>Kubo</i>	45	90	" " " "
Seedlings of			
<i>Tenjin-Goshō</i>		90	" " " "
" <i>Lotus</i>	15	30	" " " "
" <i>virginiana</i>	at least		
	30		HAGUE, 1911.
CONTORTAE			
OLEACEAE			
<i>Syringa chinensis</i> WILLD.	14-20		TISCHLER, 1908.
" <i>chinensis</i> (= <i>rothomagensis</i>)	ca. 16		" 1921-22.
" <i>vulgaris</i>	22		" 1928b.
GENTIANACEAE			
<i>Cotylanthra tenuis</i>	16-18	32-36 ³⁾	OEHLE, 1927.
<i>Gentiana lutea</i>	21		STOLT, 1921.
" <i>procera</i>		ca. 80	DENNISTON, 1913.
<i>Voyria coerulea</i>	18-20		OEHLE, 1927.
<i>Voyriella parviflora</i>	10-14		" "
<i>Leiphaimos azurea</i>	18		WINGE, 1925.
" spec.	16-20		OEHLE, 1927.
APOCYNACEAE			
<i>Vinca herbacea</i>	23		FINN, 1928.
" <i>minor</i>	23		" 1928.
ASCLEPIADACEAE			
<i>Asclepias Sullivantii</i> ENGELM.	ca. 5		FRYE, 1902.
" <i>tuberosa</i>	ca. 5		" 1901.
" <i>verticillata</i> L.	ca. 8		" 1902.

¹⁾ Five different varieties including „Tenryubo“, „Jenjamaru“, Tanenashi“ and „Fuyu“ were studied.

²⁾ Mr. SASAKA of Imp. Hort. Exp. Sta., Okitsu, had counted about 45 pairs of gemini also.

³⁾ This diploid number was determined from divisions in the embryo-sac mother cell and later divisions in embryo-sac.

TUBIFLORAE		n	2n	
CONVOLVULACEAE				
<i>Convolvulus elongatus</i>			22	HEITZ, 1926.
" <i>scammonia</i>			24(?)	" "
" <i>siculus</i>			44	HEITZ, 1926.
" <i>tricolor</i>			20	" "
" <i>undulatus</i>			22-(24)	" "
<i>Ipomaea purga</i>			(24)-23	" "
<i>Pharbitis Nil</i>	12-14	24-28		(OGHA, 1916) given by ISHI KAWA, 1916.
" Nil, CHOIS ¹⁾	15			YASUI, 1928.
" Nil CHOIS		30		NAGAO, 1928.
POLEMONIACEAE				
<i>Cobaea scandens</i> Cav.	ca 12			LAWSON, 1898
<i>Phlox Drummondii</i>		14		KELLY, 1920.
<i>Gilia millefoliata</i> FISCH et MEY	16			SCHNARF, 1921.
HYDROPHYLLACEAE				
<i>Hydrophyllum canadense</i>	9			(WINKLER, 1921) given by TISCHLER, 1921-22.
	12			SVENSSON, 1925.
<i>Nemophila atomaria</i>	9			CHITTENDEN, 1928.
" <i>aurita</i>	12			SVENSSON, 1925.
	9			CHITTENDEN, 1928.
" <i>discoidalis</i>	9			SUGIURA, 1928a.
" <i>insignis</i>	9			CHITTENDEN, 1928; SUGIURA, 1928.
" <i>integrifolia</i>	9			CHITTENDEN, 1928.
" <i>liniflora</i>	9			" "
" <i>maculata</i>	9			CHITTENDEN, 1928; SUGIURA, 1928.
<i>Phacelia campanularia</i>	11			CHITTENDEN, 1928.
" <i>congesta</i>	9			SUGIURA, 1928a.
" <i>Parryi</i>	11			CHITTENDEN, 1928.
" <i>Parryi</i> (giant)	11			" "
" <i>tanacetifolia</i> BENTH.	9			TJEBBES, 1928.
" <i>viscida</i>	11			CHITTENDEN, 1928.
" <i>Whillavia</i> (alba)	11			" "
" <i>Whillavia</i> (bicolor)	11			" "
BORRAGINACEAE				
<i>Myosotis micrantha</i>	18-20			WINGE, 1917.
" <i>versicolor</i>	30			" "

¹⁾ Diagnostic characters in 11 different strains were noted, and though differing, all had 15 haploid chromosomes.

VERBENACEAE	n	2n	
<i>Verbena angustifolia</i> MICHX.	4		KANDA, 1920.
„ <i>hastata</i> L.	6		„ „
„ <i>officinalis</i>	6		SCHNARF, 1923.
„ <i>stricta</i> VENT.	6		KANDA, 1920.
Intermediate form of <i>V. hastata</i> & <i>V. stricta</i>	6		„ „
LABIATAE			
<i>Lamium album</i>	8		MARCHAL, 1920.
„ <i>album</i> L.	9	18	HEITZ, 1926.
„ <i>amplexicaule</i>	9		JÖRGENSEN, 1927b.
„ <i>amplexicaule</i> L.	9		„ 1923.
„ <i>dissectum</i>	18		„ 1927b.
„ <i>dissectum</i> WITH.	18		„ 1923.
„ <i>Galeobdolon</i> (L.) CRIZ.	18		„ 1927b.
„ <i>intermedium</i> FR.	18		„ „
„ <i>longiflorum</i> TEN.	9		„ „
„ <i>maculatum</i> L.	9		„ „
„ <i>orvala</i> L.	9		„ „
„ <i>purpureum</i>		18	HEITZ, 1926.
„ <i>purpureum</i> L.	9		JÖRGENSEN, 1927b.
„ <i>rugosum</i> AIT.	9		„ „
„ <i>dissectum</i> × <i>amplexicaule</i>	$9 + 9\frac{1}{2}$		„ 1923.
„ <i>dissectum</i> WITH. × <i>amplexicaule</i> L.	$9 + 9\frac{1}{2}$ ¹⁾		„ 1927b.
GALEOPSIS			
Subgenus <i>Ladanium</i> REICH.			
<i>Galeopsis angustifolia</i> GAUDIN.	8		MÜNTZING, 1928.
„ <i>Ladanium</i> L.	8	16	„ „
„ <i>ochroleuca</i> LAMARCK	8	16	„ „
„ <i>pyrenaica</i> BARTHL.		16	„ „
Subgenus <i>Tetrahit</i> REICH.			
<i>Galeopsis bifida</i> BOENN.	16	32	„ „
„ <i>pubescens</i> BESS.	8		„ „
„ <i>speciosa</i> MILL.	8	16	„ „
„ <i>Tetrahit</i> L.	16	32	„ „
<i>Thymus serpyllum</i>		ca. 20	
		> 40 ²⁾	NĚMEC, 1925.

¹⁾ Reduction division follows the Drosera scheme.

²⁾ Didiploid tetradiploid cells were also found in cells of galls formed by *Eriophyes Thomasii*.

LABIATAE (continued)	n	2n	
<i>Mentha piperita</i> „Eisenstaed- tiana”	18 ¹⁾		SCHÜRHOFF, 1927.
„ <i>piperita</i>	18		HIMMELBAUR & HINDES, 1928.
„ <i>silvestris</i> L.	9		SCHÜRHOFF, 1927.
„ <i>spicata</i> var. <i>lampreille-</i> <i>ma</i> BRIQ. (= <i>M. vi-</i> <i>dis</i> L.)	18 ²⁾		„ „
„ <i>spicata</i> var. <i>lampreille-</i> <i>ma</i> BRIQ.	18		HIMMELBAUR & HINDES, 1928.
<i>Coleus Rehneltianus</i>		12-16	HABERLANDT, 1919.
SOLANACEAE			
<i>Nicandra physaloides</i> GAERTN.	10		DE VILMORIN & SIMONET, 1928.
<i>Salpichoa rhomboidea</i> NIERSEN . .	12		DE VILMORIN & SIMONET, 1927a 1928.
<i>Atropa Belladonna</i>	36		MARCHAL, 1920.
„ <i>Belladonna</i> L.	36		DE VILMORIN & SIMONET, 1927a 1928.
<i>Scopolia lurida</i> DUN.	24		DE VILMORIN & SIMONET, 1928.
<i>Hyoscyamus albus</i>	ca. 18	> 35	BONNET, 1911.
„ <i>alba</i> L.	17		DE VILMORIN & SIMONET, 1928.
„ <i>canadensis</i> HORT.	36		„ „ „ „ 1927a.
„	34		„ „ „ „ 1928.
„ <i>niger</i>		32-36	HEITZ, 1926.
„ <i>niger</i> L.	18		SVENSSON, 1926.
„	17		DE VILMORIN & SIMONET, 1928.
<i>Physalis Alkekengi</i> L.	12		„ „ „ „ 1927a. 1928.
„ <i>Francheti</i> MAST.	12		DE VILMORIN & SIMONET, 1928.
„ <i>peruviana</i> MILL.	24		„ „ „ „ 1927a.
„ <i>peruviana</i> L.	24		„ „ „ „ 1928.
„ <i>philadelphica</i> LAM.	12		„ „ „ „ 1928.
„ <i>pubescens</i> L.	12		„ „ „ „ 1927a. 1928.
<i>Capsicum annuum</i> L. var. <i>Hort.</i>	12		DE VILMORIN & SIMONET, 1927a
„ <i>annuum</i> L.	12		„ „ „ „ 1928.
„ <i>annuum chilense</i>	6 ³⁾		KOSTOFF, D. 1926.
„ <i>annuum grossum</i>	6 ³⁾		„ „

¹⁾ Division was somewhat irregular, lagging chromosomes having been left in the cytoplasm.

²⁾ Dr. HEITZ had informed the writer (SCHÜRHOFF, 1927) that $n = 17-19$. Dwarf pollen grains were also observed.

³⁾ In all species studied, but especially so in *C. annuum chilense* one pair of chromosomes (K_1 & K_2) was considerably larger than the others and were usually on the periphery of the equatorial plate.

SOLANACEAE (continued)	n	2n	
<i>Capsicum</i> (continued)			
<i>Capsicum annuum microcarpum</i>	6 ¹⁾		KOSTOFF, D. 1926.
" <i>annuum nigrum</i> . .	6 ¹⁾		" "
<i>Solanum aethiopicum</i> L. . . .	12		JÖRGENSEN, 1928; DE VILMORIN & SIMONET, 1928.
" <i>alatum</i> MOENCH. . .	24		JÖRGENSEN, 1928.
" <i>atropurpureum</i>			
SCHRANK	24		" "
" <i>auriculatum</i> AIT. . .	12		DE VILMORIN & SIMONET, 1928.
" <i>Balbisi</i> DUN. . . .	12		JÖRGENSEN, 1928.
" <i>Caldasii</i> HUMB. et			
BONYL.	12		DE VILMORIN & SIMONET, 1927a
" <i>capsicastrum</i> LINK. .	12		1928.
" <i>chacoense</i> BITTER . .	12		JÖRGENSEN, 1928; DE VILMORIN & SIMONET, 1928.
" <i>cornutum</i> LAM. . . .	12		SMITH, H. B. 1927.
" <i>cornutum</i> HORT. . .	12		JÖRGENSEN, 1928.
" <i>crispum</i> BENT. . . .	12		DE VILMORIN & SIMONET, 1928.
" <i>demissum</i> LINDL. . .	36		JÖRGENSEN, 1928.
" <i>diphyllum</i> BANKS. . .	36		SMITH, H. B. 1927; JÖRGENSEN
" <i>dulcamara</i> L.	36		1928; DE VILMORIN & SIMONET, 1928.
" <i>fastigiatum</i> WILLD. .	36		JÖRGENSEN, 1928.
" <i>Fendleri</i> GRAY . . .	24		JÖRGENSEN, 1928.
" <i>Fontanesianum</i> DUN.	12		SMITH, H. B. 1927.
" <i>Gilo</i> RADDI	12		DE VILMORIN & SIMONET, 1927a
" <i>glaucum</i> DUN	12		1928.
" <i>globiferum</i> DUN. . .	12		JÖRGENSEN, 1928.
" <i>gracile</i> OTTO	12		JÖRGENSEN, 1928.
" <i>gracile</i> LINK	12		DE VILMORIN & SIMONET, 1927a
" <i>grossularia</i> BITTER .	12		JÖRGENSEN, 1928.
" <i>guineuse</i> LAM. . . .	36		JÖRGENSEN, 1928.
" <i>haematocarpum</i> HORT	12		JÖRGENSEN & CRANE, 1927;
" <i>heterodoxum</i> DUN...	12		JÖRGENSEN, 1928.
			JÖRGENSEN 1928.
			JÖRGENSEN, 1928; DE VILMORIN & SIMONET, 1927a, 1928.

¹⁾ In all species studied, but especially so in *C. annuum chilense* one pair of chromosomes (K_1 & K_2) was considerably larger than the others and were usually on the periphery of the equatorial plate.

SOLANACEAE (continued)	n	2n	
<i>Solanum</i> (continued)			
<i>Solanum humile</i> BERNH. . . .	36		JÖRGENSEN, 1928.
„ <i>hystrix</i> DUN.	12		„ „
„ <i>insulae-paschalis</i> RIT- TER	12		„ „
„ <i>insulae-paschalis</i> HORT.	12		DE VILMORIN & SIMONET, 1928.
„ <i>integrifolium</i> POIR. . . .	12		„ „ „ „ 1927a.
„ <i>integrifolium</i> POIR (= <i>S. texanum</i> DUN.)	12		„ „ „ „ 1928.
„ <i>Jamesii</i> TORR.	12		SMITH, H. B. 1927; DE VILMORIN & SIMONET, 1927a, 1928
„ <i>jasminoides</i> PANT	12		DE VILMORIN & SIMONET, 1927a 1928; JÖRGENSEN, 1928
„ <i>laciniatum</i> AIT	24		DE VILMORIN & SIMONET, 1927a
„ <i>laciniatum</i> AIT. (= <i>S. aviculare</i> FORST. f.)	24		„ „ „ „ 1928.
„ <i>luteum</i> MILL. (= <i>S. tomentosum</i> LAM.)	24		JÖRGENSEN & CRANE, 1927.
„ <i>lycopersicum</i>	12		WINKLER, 1910, 1916; EAST, 1915; LESLEY & MANN, 1925, LESLEY, M. M., 1926.
„ <i>lycopersicum</i> L.	12		DE VILMORIN & SIMONET, 1927a 1928.
„ <i>lycopersicum</i> (chimacra)	12	24	JÖRGENSEN, 1928.
„ <i>lycopersicum</i> (triploid)		24 & 48 ¹⁾	LESLEY, M. M., 1925.
		36	LESLEY & MANN, 1925.
	12 ₃ ²⁾	36	LESLEY, M. M. 1926.
„ <i>lycopersicum</i> (tetraploid) ³⁾	24 ⁴⁾	48	JÖRGENSEN, 1928.
„ <i>lycopersicum</i> L. varieties:			
<i>Balch's Fillbasket</i>	12		JÖRGENSEN & CRANE, 1927.
	12 ₃ ⁵⁾	36	JÖRGENSEN, 1928.
<i>Danish Export</i>		36	JÖRGENSEN, 1928.
		48	„ „

¹⁾ In previous list, GAISER (1926), this was incorrectly given as 12 & 24 in the diploid column.

²⁾ At diakinesis 12 trisomes were usually found.

³⁾ JÖRGENSEN (1928, p. 151) states that tetraploids had been found in the variety „Danish Export”, the variety cross „Sutton's Best of All × Potato Leaf” and in the grafted stock „Satisfaction.”

⁴⁾ There was a tendency to form tetrasomes.

⁵⁾ The arrangement as 12 trisomes was found only in a small proportion of cells. In the majority of the cells bivalents and univalents were found.

SOLANACEAE (continued)	n	2n	
<i>Dwarf Champion</i>		24	LESLEY, J. W., 1926.
		36	" " 1928.
<i>Early Dwarf Red</i>	12		JÖRGENSEN & CRANE, 1927.
<i>Globe</i>		36	LESLEY, J. W., 1926.
<i>Large Yellow</i>	12		JÖRGENSEN & CRANE, 1927.
<i>Livingston's Dwarf Aristocrat</i>		36	LESLEY, J. W., 1928.
<i>Stone</i>		36	" " "
<i>Sutton's Best of All</i>	12		JÖRGENSEN & CRANE, 1927.
<i>Dwarf Aristocrat</i> × <i>Globe</i> F ₁		26 ¹⁾	LESLEY, J. W., 1926.
<i>Dwarf Aristocrat</i> × <i>Globe</i> F ₂	11+13	25	" " "
<i>Livingston's Dwarf Aristocrat</i> (diploid × triploid) F ₁		24-27 ²⁾	" " 1928.
<i>Solanum macrocarpon</i>		72 ³⁾	STOMPS, 1925.
" <i>macrophyllum</i> HORT.	12		DE VILMORIN & SIMONET, 1927a
			1928.
" <i>marginatum</i> LINNE f.	12		DE VILMORIN & SIMONET, 1927a
			1928.
" <i>melongena</i> ⁴⁾	12	24	KOJIMA, 1925.
" <i>melongena</i> L.	12		DE VILMORIN & SIMONET, 1927a
			1928.
" <i>memphiticum</i> GMEL.	36		JÖRGENSEN, 1928.
" <i>miniaturum</i> BERNH.	24		" "
" <i>miniaturum</i> BENCH (=			
<i>S. alatum</i> MOENCH	24		DE VILMORIN & SIMONET, 1928.
" <i>muricatum</i> AIT.	14-16	> 23	NANNETTI, 1912.
" <i>muricatum</i> AIT.	12		DE VILMORIN & SIMONET, 1927a
" <i>nigrum</i> L.	36		WINKLER, 1910, 1921; JÖRGENSEN & CRANE, 1927; DE VILMORIN & SIMONET, 1927a, 1928.
		36	72 WINKLER, 1916; JÖRGENSEN, 1928.
			72 STOMPS, 1925.
" <i>nigrum</i> L. (haploid)	$3+30\frac{1}{2}$	36	JÖRGENSEN, 1928.
	$11+14\frac{1}{2}$		
	$12+12\frac{1}{2}$		

¹⁾ Two double trisomic plants were found.

²⁾ There were 9 simple trisomes (2n = 25) types, including an extra one of the 9 chromosomes of each type. There were also disomic (2n = 26) and trisomic (2n = 27) forms.

³⁾ Some syndiploid nuclei showed 144 chromosomes.

⁴⁾ For 6 of 21 varieties investigated the haploid number was determined.

SOLANACEAE (continued)	n	2n	
<i>Solanum</i> (continued)			
<i>Solanum nigrum</i> L. (triploid) .	50-65	ca. 108	JÖRGENSEN, 1928.
„ <i>nigrum</i> L. (tetraploid)	72	140-150	„ „
„ <i>nigrum</i> var. <i>gigas</i> . .	72	144	WINKLER, 1916, 1921.
„ <i>nigrum</i> var. <i>gracile</i>			
RADDI	36		JÖRGENSEN & CRANE, 1927; DE VILMORIN & SIMONET, 1928.
„ <i>nigrum</i> var. <i>humile</i>			
BENCH		36	„ „ „
„ <i>ovigerum</i> DUN. . . .	12		DE VILMORIN & SIMONET, 1927a 1928.
„ <i>Pseudocapsicum</i> L. .	12		DE VILMORIN & SIMONET, 1928.
„ <i>Pseudo-maglia</i> HORT.	12		DE VILMORIN & SIMONET, 1927 1928.
„ <i>pyracanthum</i> JACQ. .	12		DE VILMORIN & SIMONET, 1927a 1928; JÖRGENSEN, 1928.
„ <i>quercifolium</i> L. . . .	12		JÖRGENSEN, 1928.
„ <i>racemiflorum</i> DUN. .	12		„ „
„ <i>Roberti-Eliae</i> BITTER	36		„ „
„ <i>Robinsonianum</i> BIT-			
TER	36		„ „
„ <i>suffruticosum</i>			
SCHAMBER	12		„ „
„ <i>sysimbriifolium</i> LAM. .	12		JÖRGENSEN & CRANE, 1927; DE VILMORIN & SIMONET, 1927a, 1928.
„ <i>Tomato</i> PHIL. f. . .	12		DE VILMORIN & SIMONET, 1928.
„ <i>triflorum</i> NUTT. . . .	12		„ „ „ „ „
„ <i>tuberosum</i>		ca. 36	NĚMEC, 1899.
		33-34	MARTINS MANO, 1905.
	14-16		YOUNG, 1923.
		± 36	MÜLLER, K., 1925.
„ <i>tuberosum</i> (domestic)	24		(ADAMS) given by SALAMAN, 1928.
„ <i>tuberosum</i> L.	24		JÖRGENSEN, 1928.
„ <i>tuberosum</i> var. . . .	24		DE VILMORIN & SIMONET, 1927a
„ <i>tuberosum</i> varieties:			
<i>Akita Poraris</i>		48	FUKUDA, 1927.
<i>Akita Usukawa</i>		48	„ „
<i>American Wonder</i>	24		STOW ¹⁾ , 1926-27.
		48	FUKUDA, 1927.

¹⁾ Stow (1926-27) stated that abnormal division in the pollen mother-cells was shown in a greater degree in the group American Wonder, Burbank's Seedling, Ekishirazu, Green Mountain, Michigan, Nemuro Murasaki, Rural New Yorker, and Snowflake, than in the other varieties studied by him.

SOLANACEAE (continued)	n	2n	
<i>Beauty of Hebron</i>		48	FUKUDA, 1927.
<i>Bella donna</i>	24		STOW, 1926, 1926-27.
<i>Bishop</i> HORT.		48	DE VILMORIN & SIMONET, 1928.
<i>Bovee</i>		48	FUKUDA, 1927.
<i>Burbank's Seedling</i>	24		STOW, 1926-27.
<i>Deodara</i>	24		" "
<i>Early Beauty of Hebron</i> . . .		48	FUKUDA, 1927.
<i>Early Mother</i>		48	" "
<i>Early Ohio</i>		48	" "
	24 & ca. 46		SMITH, 1927.
<i>Early Puritan</i>		48	FUKUDA, 1927.
<i>Early Rose</i>		ca. 36 ¹⁾	LUTMAN, 1925.
		48	FUKUDA, 1927; SMITH, H. B., 1927.
<i>Early Rose</i> HORT.	24		DE VILMORIN & SIMONET, 1928.
	48		" " " "
<i>Ekishirazu</i>	24		STOW, 1926-27.
<i>Ekishirazu</i> No. 12		48	FUKUDA, 1927.
<i>Ekishirazu</i> No. 45		48	" "
<i>Eureka</i>		48	" "
<i>Gratiola</i>	24		STOW, 1926, 1926-27.
<i>Green Mountain</i>		ca. 36 ¹⁾	LUTMAN, 1925.
	24		STOW, 1926-27.
<i>Irish Cobbler</i>		ca. 36 ¹⁾	LUTMAN, 1925.
		48	FUKUDA, 1927.
<i>Iwata Akaimo</i>		48	" "
<i>Kamiyaimo</i>		48	" "
<i>King Edward VII</i>		48	" "
<i>Look Out Mountain</i>		ca. 36 ¹⁾	LUTMAN, 1925.
<i>Majoran</i>		48	FUKUDA, 1927.
<i>Marschal Hindenburg</i> . . .	24		STOW, 1926, 1926-27.
<i>May Queen</i>		48	FUKUDA, 1927.
<i>McCormick</i>	24		SMITH, H. B., 1927.
<i>McIntyre</i>	24		SMITH, H. B., 1927.
<i>Michigan</i>	24		STOW, 1926-27.
<i>Morioka Kairyo</i>		48	FUKUDA, 1927.
<i>Moustache Leaved Kidney</i> . .		48	" "
<i>Nemuro</i>		48	" "
<i>Nemuro murasaki</i>	24		STOW, 1927-27
<i>Nemuro No</i>		48	FUKUDA, 1927.
<i>Northern Star</i>		48	" "
<i>Parnassia</i>	24		STOW, 1926, 1926-27.

¹⁾ Counts ranged from 36 to 45.

SOLANACEAE (continued)	n	2n	
<i>Pepo</i>	24		STOW, 1926, 1926-27.
<i>Pepo</i> HORT.	24		DE VILMORIN & SIMONET, 1928.
<i>Pirola</i>	24		STOW, 1926, 1926-27.
<i>Reeves Rose</i>		48	FUKUDA, 1927.
<i>Rural New Yorker</i>	24		STOW, 1926-27.
		48	FUKUDA, 1927.
<i>Russet Rural</i>	24 & 48		SMITH, H. B., 1927.
<i>Sir John le Lewelyn</i>		48	FUKUDA, 1927.
<i>Snowflake</i>	24		STOW, 1926-27.
		48	FUKUDA, 1927.
<i>Tuno</i>	24		STOW, 1926, 1926-27.
<i>Wase Shiro</i>		48	FUKUDA, 1927.
<i>Solanum tuberosum</i> var. <i>oculosum</i> ALEF. „ <i>Piroshof</i> ”		48-59	LEVITSKY & BENETZKAJA, 1927.
„ <i>tuberosum</i> var. <i>oculosum</i> ALEF. „ <i>Tannenzapfen</i> ”		48, 49, 53	LEVITSKY & BENETZKAJA, 1927.
„ <i>tuberosum</i> var. <i>oculosum</i> ALEF. „ <i>Woltmann</i> ” ¹⁾		48-50	LEVITSKY & BENETZKAJA, 1927
„ <i>utile</i>	36		(ADAMS) given by SALAMAN, 1928.
„ <i>villosum</i> MOENCH.	24		DE VILMORIN & SIMONET, 1927a
„ <i>villosum</i> WILD. (= <i>S. luteum</i> WILD)	24		DE VILMORIN & SIMONET, 1928.
„ <i>Wendlandi</i> HOOK. f.	12		DE VILMORIN & SIMONET, 1928.
„ <i>xanthocarpum</i> SCHRAD. et WENDL.	12		JÖRGENSEN, 1928.
„ <i>Zuccagnianum</i> DUN.	12		„ „
„ <i>nigrum</i> × <i>S. luteum</i> . $24 + \frac{12_1^2}{2}$		60	„ „
„ <i>nigrum</i> × <i>S. luteum</i> (tetraploid)	60 ³⁾	ca. 120	„ „
„ <i>utile</i> × <i>S. tuberosum</i> F ₁	$24 + \frac{12_1^4}{2}$		(ADAMS) given by SALAMAN, 1928.

¹⁾ Syndiploid plates were found in this species.

²⁾ Though such arrangement was clear in some cells, in most cells it could not be definitely ascertained. In the division leading to megaspore formation some of the univalents were usually not included in the nuclei.

³⁾ Some irregularities occurred.

⁴⁾ At homeotypic metaphase the number varied from 25 to 39, with 29, 30 and 31 predominating. Many chromosomes were not included in the nuclei of the tetrad.

SOLANACEAE (continued)	n	2n
Solanum (continued)		
<i>Solanum utile</i> × <i>S. tuberosum</i>		
F ₂ ¹⁾	27-30,	48-60, (ADAMS) given by SALAMAN, 1923.
	30-38	60-72 (ADAMS) given by SALAMAN, 1923.
<i>Solanandra grandiflora</i> Fw. . . .	11,(12)	CAMPIN, 1924.
NICOTIANA ²⁾		
Section <i>Tabacum</i>		
<i>Nicotiana Rusbyi</i>	12	BRIEGER, 1923a.
" <i>Rusbyi</i> BRITT.	12	" 1927, 1928b.
" <i>Tabacum</i> ³⁾	24	WHITE, O. E., 1913; GOODSPEED, 1923, 1924; CLAUSEN & MANN, 1924; CLAUSEN & GOODSPEED, 1925, 1926a; CLAUSEN, R. E., 1928b; BRIEGER, 1923a.
	24	48 CHRISTOFF, 1925.
		54-56 NIKOLAWEA (1924), 1925.
" <i>Tabacum</i> L.	24	DE VILMORIN & SIMONET, 1927a, 1928.
" <i>Tabacum</i> L. var. <i>angustifolia</i> MILL. . .	24	DE VILMORIN & SIMONET, 1927a, 1928.
" <i>Tabacum</i> var. <i>Dubek</i>	24	48 EGHIS, 1927.
		48 ⁴⁾ RYBIN, 1927b.
" <i>Tabacum</i> L. var. <i>fruticosa</i> HORT.	24	DE VILMORIN & SIMONET, 1927a, 1928.
" <i>Tabacum</i> L. var. <i>havanensis</i> (Cuba) . .	24	CHRISTOFF, 1925, 1928; BRIEGER, 1927, 1928b.
		24 ⁵⁾ RUTTLE, 1928.
" <i>Tabacum</i> L. var. <i>macrophylla</i>	24	48 CHRISTOFF, 1925, 1928.

¹⁾ Families of two types were produced.

²⁾ This classification under sections is according to EAST (1923a), following COMES (1899).

³⁾ GOODSPEED (1924) states that he examined 5 varieties of this species.

⁴⁾ According to RYBIN (1927b) the chromosomes of *N. Tabacum* var. *Dubek* are more alike in size, while those of *N. rustica* (Turkestan var. *Kolmak*) were found to differ from one another in size.

⁵⁾ Two such haploids appeared in an F₁ (*Cuba* × *sylvestris*) population. In both this haploid and the haploid *purpurea* plant, examination of root-tips showed that roots were either entirely diploid, entirely haploid, or part haploid and part diploid.

SOLANACEAE (continued)		n	2n
NICOTIANA (continued)			
Section <i>Tabacum</i> (continued)			
<i>Nicotiana Tabacum</i> L. var. <i>purpurea</i>			
		24 ¹⁾	GOODSPEED & CLAUSEN, 1927b; GOODSPEED & OLSON, 1928.
			48 RUTTLE, 1928.
		$< \frac{24_1^1}{2}$	GOODSPEED & OLSON, 1928.
		48	" " " "
		$\frac{24_1^2}{2}$	CHIPMAN & GOODSPEED, 1927.
		24 ²⁾	RUTTLE, 1928.
"	<i>Tabacum</i> L. var. <i>sanguinea</i> HORT.	24	DE VILMORIN & SIMONET, 1927a, 1928.
"	<i>Tabacum</i> L. var. <i>Sao Felix</i>		48 RYBIN, 1927b; EGHIS, 1927.
"	<i>Tabacum</i> L. (White flowering variety) .	24	CHRISTOFF, 1928.
"	<i>Tabacum</i> form „Corrugated”	23 + 1 ₁	CLAUSEN & GOODSPEED, 1926b.
"	<i>Tabacum</i> form „Enlarged”	24 + 1 ₁	" " " 1924.
"	<i>Tabacum</i> form „Fluted”	23 + 1 ₁ ³⁾	" " " 1926a.
"	<i>tomentosa</i>	12	GOODSPEED & CLAUSEN, 1927b; CLAUSEN, R. E., 1928b; BRIEGER, 1928a.
"	<i>tomentosa</i> R. & P.	24	CHRISTOFF, 1928.
Section <i>Rustica</i>			
"	<i>Nicotiana acuminata</i>	12	GOODSPEED, 1923, 1924; CLAUSEN, R. E., 1928b.
"	<i>acuminata</i> GRAH.	12	CHRISTOFF, 1928.
"	<i>acuminata</i> HOOK.	12	VILMORIN & SIMONET, 1927a, 1928.

¹⁾ The result of X-raying seedlings (GOODSPEED & OLSON (1928)) was that half of the number contained 24 chromosomes at the heterotypic metaphase and showed normal division. The remainder showed abnormal somatic and meiotic divisions and the chromosome number in the pollen-mother-cells was less than normal (23, 21, 23 + 2₁, 23 + 1₁, 22 + 2₁). In three of the variants so produced, one univalent partner possessed a small appendage like a satellite. In cases with 21 and 22 + 2₁ chromosomes, one chromosome of a pair bore a satellite.

²⁾ This haploid appeared in an F₁ (*purpurea* × *sylvestris*) population described by CLAUSEN & MANN (1924). RUTTLE (1928) refers to another haploid, which appeared in an F₁ (*purpurea* × *tomentosa*) population as well.

³⁾ In most cases division of the one univalent did not occur.

SOLANACEAE (continued)		n	2n	
NICOTIANA (continued)				
Section Rustica (continued)				
<i>Nicotiana alata</i>	8-10			GOODSPEED, 1923.
	8			CHRISTOFF, 1925.
	9			GOODSPEED & CLAUSEN, 1927b; CLAUSEN, R. E., 1928b.
" <i>alata</i> LINK (<i>N. affinis</i>)	9-10			DE VILMORIN & SIMONET, 1927c
	9 ¹⁾			GOODSPEED, 1924; DE VILMORIN & SIMONET 1928.
" <i>alata</i> LK. & OTTO . .	8	16		CHRISTOFF, 1928.
" <i>alata</i> var. <i>grandiflora</i>	9 ²⁾	18 ³⁾		RUTTLE, 1927.
" <i>angustifolia</i>	10			CLAUSEN, R. E., 1928b.
" <i>attenuata</i>	12			" " " "
" <i>viscosa</i> LEHM (= <i>N. attenuata</i> var.) ⁴⁾ .	24			CHRISTOFF, 1928.
" <i>Bigelovii</i>	24			GOODSPEED, 1923, 1924; GOOD- SPEED & CLAUSEN, 1927a; CLAUSEN, R. E., 1928b.
" <i>Bigelovii</i> WATS. . .	24	48		CHRISTOFF, 1928.
" <i>Clevelandii</i> (= <i>N. Bigelovii</i> var (?) ⁴⁾	24			CLAUSEN, R. E., 1928b
" <i>multivalvis</i> (= <i>N. Bigelovii</i> var.) ⁴⁾ .	24			" " "
" <i>multivalvis</i> PURSH. (= <i>N. Bigelovii</i> var.) ⁴⁾	24			CHRISTOFF, 1928.
" <i>quadrivalvis</i> (= <i>N. Bigelovii</i> var.) ⁴⁾	24			CLAUSEN, R. E., 1928b.
" <i>quadrivalvis</i> LINDL. (= <i>N. Bigelovii</i> var.) ⁴⁾	24			CHRISTOFF, 1928.
" <i>caudigera</i> RH. . . .	12	24		" " "
" <i>cordifolia</i>	12			CLAUSEN, R. E., 1928b.
" <i>Forgetiana</i>	9			MALLOCH & MALLOCH, 1924; CLAUSEN, R. E., 1928b; DE VILMORIN & SIMONET, 1928.
" <i>Forgetiana</i> HORT. . .	9-10			DE VILMORIN & SIMONET, 1927a

¹⁾ GOODSPEED (1:24) found 10 chromosomes frequently, but considered 9 to be the predominating number.

²⁾ As a result of non-disjunction, 8 and 10 chromosomes could be counted in the divisions in the pollen-mother-cells.

³⁾ Two pairs of satellites were distinguished.

⁴⁾ This synonym was taken from EAST (1928a).

SOLANACEAE (continued)	n	2n	
Nicotiana (continued)			
Section Rustica (continued)			
<i>Nicotiana glauca</i>	12		GOODSPEED, 1923, 1924; CLAUSEN, E. R., 1928b.
„ <i>glauca</i> GRAH.	12	24	CHRISTOFF, 1928.
„ <i>glutinosa</i>	12		GOODSPEED, 1923, 1924; CLAUSEN & GOODSPEED, 1925; GOODSPEED & CLAUSEN, 1927a; CLAUSEN, R. E., 1928b; BRIEGER, 1928a.
„ <i>glutinosa</i> L.	12		DE VILMORIN & SIMONET, 1927a, 1928.
„	12	24	CHRISTOFF, 1928.
„ <i>Langsdorfii</i> ¹⁾	9		GOODSPEED, 1923, 1924; CLAUSEN, R. E., 1928b.
„	9	18	(KOSTOFF), given by EAST, 1928a.
„ <i>Langsdorfii</i> WEINM.	8	16	CHRISTOFF, 1928.
„ <i>longiflora</i>	10 ²⁾		GOODSPEED, 1923, 1924; GOODSPEED & CLAUSEN, 1927b; CLAUSEN, R. E., 1928b.
„ <i>longiflora</i> CAV.	10		CHRISTOFF, 1928; DE VILMORIN & SIMONET, 1928'
„ <i>plumbaginifolia</i> Viv. (= <i>N. longiflora</i> var.) ³⁾		20	CHRISTOFF, 1928.
„ <i>nudicaulis</i>	24		GOODSPEED, 1923, 1924; CLAUSEN, R. E., 1928b.
„ <i>nudicaulis</i> WATS	24	48	CHRISTOFF, 1928.
„ <i>Palmeri</i> (?)	12	24	„ „
„ <i>paniculata</i>	12		GOODSPEED, 1923, 1924; GOODSPEED, CLAUSEN & CHIPMAN, 1926; CLAUSEN, R. E., 1928b.
„ <i>paniculata</i> L.	24		EAST, 1921.
„	12		EAST, 1928a; DE VILMORIN & SIMONET, 1927a, 1928.
„	12	24	CHRISTOFF, 1928.
„ <i>repanda</i>	24		CLAUSEN, R. E., 1928b.
„ <i>rustica</i> ⁴⁾	24		GOODSPEED, 1923, 1924; CHRISTOFF, 1925; CLAUSEN, R. E., 1928b.

¹⁾ GOODSPEED (1924) states that he examined 2 varieties of this species.

²⁾ GOODSPEED (1924) considered 10 to be the predominating number, though 9 or 10 chromosomes appeared.

³⁾ This synonym was taken from EAST (1928a).

⁴⁾ GOODSPEED (1924) states that he examined 3 varieties of this species.

SOLANACEAE (continued)	n	2n	
Nicotiana (continued)			
Section Rustica (continued)			
<i>Nicotiana rustica</i> L.	24	48-46	NIKOLAewa, 1925. EAST, 1921; DE VILMORIN & SIMONET, 1927a, 1923.
„ <i>rustica</i> var. <i>brasilia</i>	24		GOODSPEED, CLAUSEN & CHIP- MAN, 1926.
„ <i>rustica</i> L. var. <i>brasila</i>	24	48	CHRISTOFF, 1923.
„ <i>rustica</i> L. var. <i>humilis</i>	24		„ „
„ <i>rustica</i> var. <i>pumila</i> .	24		GOODSPEED, CLAUSEN & CHIP- MAN, 1926.
„ <i>rustica</i> var. <i>scabra</i> .	24		GOODSPEED, CLAUSEN & CHIP MAN, 1926.
„ <i>rustica</i> L. var. <i>Shvitzent</i> . .		48	RYBON, 1927b; EGHIS, 1927. CHRISTOFF, 1928.
„ <i>rustica</i> L. var. <i>texana</i>	24		
„ <i>rustica</i> L. <i>Turkestan</i> var. <i>Kolmak</i>	24	48 ¹⁾	RYBIN, 1927b. CHRISTOFF, 1928.
„ <i>Sanderae</i>	8		DE VILMORIN & SIMONET, 1927a
„ <i>Sanderae</i> HORT. . .	9-10		MALLOCH & MALLOCH, 1924; CLAUSEN, R. E., 1923b; DE VILMORIN & SIMONET, 1928.
	9		
„ <i>solanifolia</i>	12		CLAUSEN, R. E., 1923b.
„ <i>solanifolia</i> WALP. .	24		DE VILMORIN & SIMONET, 1927a, 1923.
„ <i>solanifolia</i> WOLF. (<i>N.</i> <i>cardiophylla</i> RH. .	12	24	CHRISTOFF, 1928
„ <i>solanifolia</i> (?) (= <i>N.</i> <i>rustica</i> var. <i>humilis</i>)	24	28	„ „
„ <i>suaveolens</i>	18 ²⁾		GOODSPEED, 1923, 1924.
	16 ³⁾		GOODSPEED & CLAUSEN, 1927a; CLAUSEN, R. E., 1923b.
„ <i>suaveolens</i> LEHM. . .	16	32	CRISTOFF, 1923.

¹⁾ According to RYBIN (1927b) the chromosomes of *N. Tabacum* var. *Dubek* are more alike in size, while those of *N. rustica* (*Turkestan* var. *Kolmak*) were found to differ from one another in size.

²⁾ Though GOODSPEED (1924) gave a lower number, he stated that there was doubt as to its correctness because of the small amount of available material, and expressed the possibility that the number be 18.

³⁾ GOODSPEED & CLAUSEN (1927a) considered the previous determination ($n = 18$) to be incorrect.

SOLANACEAE (continued)	n	2n	
Nicotiana (continued)			
Section Rustica (continued)			
<i>Nicotiana suaveolens</i> (from Australia)	20		(GOODSPEED), given by EAST, 1928a.
" <i>suaveolens</i> (from Australia)	32		(GOODSPEED), given by EAST, 1928a.
" <i>sylvestris</i>	12		GOODSPEED, 1923, 1924; CLAUSEN & MANN, 1924; CLAUSEN & GOODSPEED, 1926a; GOODSPEED & CLAUSEN, 1927b; CLAUSEN, R. E., 1928b; BRIEGER, 1928a.
" <i>sylvestris</i> SPEG. & COMES	12		DE VILMORIN & SIMONET, 1927a, 1928.
	12	24	CHRISTOFF, 1928.
" <i>trigonophylla</i>	12		CLAUSEN, R. E., 1928b.
" <i>trigonophylla</i> DUN. . . .	24		DE VILMORIN & SIMONET, 1927a, 1928.
	12	24	CHRISTOFF, 1928.
Section (?)			
<i>Nicotiana cerinthoides</i> VITUP.	9		DE VILMORIN & SIMONET, 1927a, 1928.
" <i>clarionensis</i>	24		CLAUSEN, R. E., 1928b.
" <i>noctiflora</i> HOOK.	9		DE VILMORIN & SIMONET, 1927a, 1928.
" <i>petiolaris</i> SCHLECHT.	24		DE VILMORIN & SIMONET, 1927a, 1928.
<i>Nicotiana</i> Hybrids:			
<i>Nicotiana alata</i> × <i>N. Langsdorffii</i>	8 ¹⁾		CHRISTOFF, 1923.
" <i>Bigelovii</i> × <i>N. glutinosa</i>	12 & 24, 30 & 6, etc. ²⁾		GOODSPEED & CLAUSEN, 1927a
" <i>Bigelovii</i> × <i>N. suaveolens</i> and recip.	18, 26 & 14, ²⁾ 39 & 1, etc.		" " " "

¹⁾ Both heterotypic and homoeotypic divisions were regular.

²⁾ Apparently there is no pairing of chromosomes; there is great irregularity in the division of the chromosomes to the two poles.

SOLANACEAE (continued)	n	2n	
Nicotiana (continued)			
Nicotiana Hybrids (continued):			
<i>Nicotiana digluta</i> ¹⁾ × <i>N. glutinosa</i>	$12 + \frac{24}{2} 1$		CLAUSEN, R. E., 1928a, b.
„ <i>digluta</i> × <i>N. Tabacum</i>	$24 + \frac{12}{2} 1$		„ „ „ „ „
„ <i>digluta</i> × <i>N. Tabacum</i> F ₂	$24 + \frac{0_1 - 8_1}{2}$		„ „ „ „
„ <i>digluta</i> × <i>N. Tabacum</i> (× <i>N. Tabacum</i>)	$24 + \frac{0_1 - 8_1}{2}$		„ „ „ „
„ <i>digluta</i> × <i>N. Tabacum</i> (× <i>N. digluta</i> . m + n ₁)	$\frac{2}{2}$		„ „ „ „
„ <i>glaucia</i> × <i>N. Langsdorffii</i>	$9 + \frac{31}{2}$		(KOSTOFF), given by EAST, 1928a.
„ <i>glaucia</i> × <i>N. Langsdorffii</i> × <i>N. Langsdorffii</i>		21 ⁵⁾ , 30, 32	(KOSTOFF, given by EAST, 1928a.
<i>glutinosa</i> × <i>N. Tabacum</i> var. <i>purpurea</i> ⁴⁾	$12 + \frac{0_1 - 12_1}{2}$		CLAUSEN & GOODSPEED, 1925.
„ <i>glutinosa</i> × <i>N. Tabacum</i> var. <i>purpurea</i> F ₂		36	CLAUSEN, R. E., 1928b.
„ <i>longiflora</i> × <i>N. alata</i>	9 + 1 ₁		CLAUSEN, & GOODSPEED, 1925. GOODSPEED & CLAUSEN, 1927b.

¹⁾ This name has been applied to a line of plants coming from the F₁ of *N. glutinosa* × *N. Tabacum* having 36 haploid chromosomes. (CLAUSEN & GOODSPEED, 1925). See this hybrid below.

²⁾ In one plant there were 25 + 2₁.

³⁾ m was = or > 24 and m + n = 36.

⁴⁾ Reduction division follows the *Drosera* scheme.

⁵⁾ This chromosome number is made up as follows: (2_a + 7_a + 1₁ = 21 = 2n).

⁶⁾ The behavior of the chromosomes in this hybrid closely parallels that seen in the F₁ of *N. Tabacum* and *N. sylvestris*.

⁷⁾ There were no univalents and all the chromosomes moved to the poles in a regular way.

SOLANACEAE (continued)	n	2n	
Nicotiana Hybrids (continued):			
<i>Nicotiana longiflora</i> × <i>N. Sanderae</i>	$8 + \frac{2_1^1}{2}$		CHRISTOFF, 1928.
„ <i>paniculata</i> × <i>N. Langsdorfii</i>	$18_1^2)$ $\frac{2}{2}$	„	„
„ <i>rustica</i> × <i>N. paniculata</i>	$12 + \frac{6_1^3}{2}$	„	„
„ <i>rustica</i> var. <i>brasilia</i> × <i>N. paniculata</i>	$12 + \frac{1_1 - 6_1^4}{2}$		GOODSPEED, CLAUSEN & CHIPMAN, 1926.
(„ <i>rustica</i> var. <i>brasilia</i> × <i>N. paniculata</i>) × <i>N. paniculata</i>	$12 + \frac{1_1 - 11_1^5}{2}$		GOODSPEED, CLAUSEN & CHIPMAN, 1926.
(„ <i>rustica</i> var. <i>brasilia</i> × <i>N. paniculata</i>) × <i>N. rustica</i> var. <i>brasilia</i>	$18 + \frac{1_1 - 6_1}{2}$ $24 + \frac{0_1 - 4_1}{2}$		GOODSPEED, CLAUSEN & CHIPMAN, 1926.
(„ <i>rustica</i> × <i>N. paniculata</i>) × <i>N. Langsdorfii</i>		24, 32 ⁶⁾	(KOSTOFF), given by EAST, 1928a.
„ <i>rustica</i> × <i>N. Tabacum</i> (white)	$48_1^7)$ $\frac{2}{2}$		CHRISTOFF, 1928.
„ <i>rustica</i> × <i>L.</i> var.			

¹⁾ Reduction division follows the *Drosera* scheme. Regularly two univalents lagged outside the plate but cases showing four were found.

²⁾ No bivalents were observed but distribution to the two poles is fairly regular.

³⁾ The number of chromosomes in the two homoeotypic plates shows fairly even distribution of the univalents along with the bivalents has occurred on the heterotypic spindle.

⁴⁾ On the heterotypic spindle the twelve bivalents were distributed regularly to the poles, but the twelve univalents, irregularly and without division.

⁵⁾ In general, conditions were similar to those described in foot-note ¹⁾, but there were evidences of division of univalents on the heterotypic spindle in some cases.

⁶⁾ Where $2n = 24$, one trivalent was present. Where $2n = 32$, five trivalents were present.

⁷⁾ The first division was so regular as to make it difficult to be certain whether pairs had been formed or not. Very irregular homoeotypic division followed with frequent formation of diads instead of tetrads.

SOLANACEAE (continued)		n	2n	
Nicotiana Hybrids (continued):				
<i>Shvitzen</i> × <i>N. Tabacum</i> var. <i>Dubek</i>			48	EGHIS, 1927.
<i>Nicotiana rustica</i> var. <i>Mahorka</i> #1 × (<i>N. Tabacum</i> L. var. <i>Dubek</i> × <i>N. rustica</i> var. <i>Kolmak</i>)			67-72	RYBIN, 1927b.
„ <i>rustica</i> × <i>N. Tabacum</i> var. <i>sanguinea</i> × <i>N. Tabacum</i> var. <i>sanguinea</i>		36-38	70-72	(KOSTOFF), given by EAST, 1928a.
		32	53 ¹⁾	(KOSTOFF), given by EAST, 1928a.
[(<i>Nicotiana rustica</i> × <i>N. Tabacum</i> var. <i>sanguinea</i>) × <i>N. Tabacum</i> var. <i>sanguinea</i>] × <i>N. Tabacum</i> var. <i>sanguinea</i> .		30 ²⁾		(KOSTOFF), given by EAST, 1928a.
<i>Nicotiana suaveolens</i> × <i>N. Bigelovii</i>		$40\frac{1}{2}$ ³⁾		CHRISTOFF, 1928.
„ <i>suaveolens</i> × <i>N. glutinosa</i>		$28\frac{1}{2}$ ⁴⁾		„ „
„ <i>sylvestris</i> × <i>N. Tabacum</i>		$12+12\frac{1}{2}$		CLAUSEN, R. E., 1928b; GOOD-SPEED & CLAUSEN, 1928.
„ <i>sylvestris</i> × <i>N. Tabacum</i> vars. <i>angustifolia</i> „Cuba and Miradato”		$12+12\frac{1}{2}$		GOODSPEED, 1923.
„ <i>sylvestris</i> × <i>N. Tabacum</i> form „fluted”		$12+11\frac{1}{2}$		CLAUSEN & GOODSPEED, 1926a.

¹⁾ One plant having 32 chromosomes at first metaphase had only 53 somatic chromosomes.

²⁾ One plant of this second back-cross was found to have 30 chromosomes at the first metaphase.

³⁾ There is no pairing and the chromosomes are scattered very irregularly over the spindle during the first division. The second division is regular and all the chromosomes on the spindles undergo an equational split, leaving some of the descendants of the lagging chromosomes of the first division to form micro nuclei.

⁴⁾ No bivalents were observed and many lagging chromosomes appeared in the anaphase figures.

SOLANACEAE (continued)		n	2n	
Nicotiana Hybrids (continued):				
<i>Nicotiana sylvestris</i> × <i>N. Tabacum</i> var. <i>purpurea</i>				
		$12 + \frac{0_1 - 12_1^1}{2}$		GOODSPEED & CLAUSEN, 1927b.
„ <i>sylvestris</i> × <i>N. Tabacum</i> var. <i>purpurea</i>)				
	× <i>N. sylvestris</i> . . .	$12 + \frac{0_1 - 12_1}{2}$		GOODSPEED & CLAUSEN, 1927b, 1928.
„ <i>sylvestris</i> × <i>N. tomentosa</i>				
		$\frac{24_1}{2}$		CLAUSEN, R. E., 1928b; GOODSPEED & CLAUSEN, 1928.
„ <i>Tabacum</i> var. <i>Cuba</i> × <i>N. alata</i>				
		$8 + \frac{16_1^{2)}}$		CHRISTOFF, 1928.
„ <i>Tabacum</i> × <i>N. glauca</i> ,				
		$12 + \frac{12_1^{3)}}$		(KOSTOFF), given by EAST 1928a.
„ <i>Tabacum</i> × (<i>N. Langsdorfii</i> × <i>N. Sanderae</i>)				
			33	(KOSTOFF), given by EAST 1928a.
„ <i>Tabacum</i> L. var. <i>Cuba</i> × <i>N. Rusbyi</i> BRITT.				
		$12 + \frac{12_1}{2}$		BRIEGER, 1927, 1928b.
(„ <i>Tabacum</i> L. var. <i>Cuba</i> × <i>N. Rusbyi</i> BRITT.) × <i>N. Tabacum</i> L. var. <i>Cuba</i>				
		24	48	BRIEGER, 1928b.
(„ <i>Tabacum</i> L. var. <i>Cuba</i> × <i>N. Rusbyi</i> BRITT.) × <i>N. Tabacum</i> L. var. <i>Cuba</i> ; Plant 1E				
		$24 - 36^{4)}$	60	„ „
(„ <i>Tabacum</i> L. var. <i>Cuba</i> × <i>N. Rusbyi</i> BRITT.) × <i>N. Tabacum</i>				

¹⁾ On the heterotypic spindle the 12 bivalents are distributed regularly to the poles but the 12 univalents irregularly and without division.

²⁾ Reduction division was quite irregular, bivalents forming a plate while univalents passed to the poles, some presumably dividing, since as many as 38 were found on the two homoeotypic plates³⁾

³⁾ Reduction division follows the *Drosera* scheme.

⁴⁾ Each daughter nucleus received at least 24 and not more than 36 chromosomes. The arrangement at heterotypic metaphase is represented by $12 + 12_s$ or $12 + (2_s + 10 + 10_1)$.

SOLANACEAE (continued)		n	2n	
Nicotiana Hybrids (continued)				
	<i>cum</i> L. var. <i>Cuba</i> ;			
	Plant 8B	27-30 ¹⁾	54	BRIEGER, 1923b.
	<i>Nicotiana Tabacum</i> L. var. <i>Dubek</i> × <i>N. rustica</i> L.			
	var. <i>Kolmak</i>	48 ²⁾	72	RYBIN, 1927b
			48	EGHIS, 1927
"	<i>Tabacum</i> L. var. <i>Dubek</i> × <i>N. rustica</i> L.			
	var. <i>Shvitzent</i>		72	RYBIN, 1927b.
(,,	<i>Tabacum</i> L. var. <i>Dubek</i> × <i>N. rustica</i> L.			
	var. <i>Kolmak</i>) × <i>N. rustica</i> L. var. <i>texana</i>	48 ³⁾	96	" "
"	<i>Tabacum</i> (white) × <i>N. Sanderae</i>	$8 + \frac{16_1}{2}$ ⁴⁾		CHRISTOFF, 1928.
	<i>Tabacum</i> var. <i>macrophylla</i> × <i>N. sylvestris</i> ⁵⁾		24	CLAUSEN & MANN, 1924.
"	<i>Tabacum</i> var. <i>purpurea</i> × <i>N. sylvestris</i> .		24	" " " "
"	<i>tomentosa</i> × <i>N. Tabacum</i>	$12 + \frac{0-12_1}{2}$ ⁶⁾		GOODSPEED & CLAUSEN, 1927b.
		$\frac{12+12_1}{2}$		CLAUSEN, R. E., 1928b; GOODSPEED & CLAUSEN, 1928.
"	<i>Tabacum</i> × <i>Verbascum phlomoides</i> . . .		<54-56 ⁷⁾	NIKOLAEWA, 1925.

¹⁾ Each daughter nucleus received 24 to 30 chromosomes in one case and 18 to 36 in another case. At the heterotypic metaphase 29-30 were the predominating numbers.

²⁾ Differences in the sizes of these 48 chromosomes led RYBIN (1927b) to suppose that they were 24 bivalents and 24 univalents, though the exact number of the latter was not determined. Both hetero- and homoeotypic metaphases showed great irregularities.

³⁾ RYBIN (1927b) found great regularity in the meiosis of this hybrid and though more than 48 chromosomes were frequently seen in the heterotypic metaphase, such was explained by premature separation of some of the chromosomes.

⁴⁾ Reduction divisions resemble those of *N. Tabacum* × *N. alata* (See foot-note ²⁾ previous page).

⁵⁾ This was incorrectly given in GAISER (1926).

⁶⁾ "The distributional mechanism is the same as that in *F*₁ *paniculata-rustica* and *F*₁ *sylvestris-tabacum*." (GOODSPEED & CLAUSEN, 1927b). See foot-note ⁴⁾ p. 308.

⁷⁾ By pollination of castrated flowers of *N. Tabacum* by pollen of *Verbascum phlomoides*, pollen tubes were formed but never reached the ovules. Some ovules seeme to develop as a result of the irritation and had cells like *N. Tabacum*, but with less chromosomes.

SOLANACEAE (continued)	n	2n
<i>Salpiglossis sinuata</i> Ruiz. et		
PAR.	22	DE VILMORIN & SIMONET, 1928.
<i>Petunia nyctaginiflora</i> Juss. .	7	FERGUSON, M., 1928.
„ <i>violacea</i> LINDL. ¹⁾ . .	7	14 SKALINSKA & CUCHTMAN, 1927,
„ <i>violacea</i>	7 ²⁾	MATSUDA, 1928.
„ <i>violacea</i> LIND. (varie- gated strain)		14 ³⁾ MALINOWSKI, 1928.
„ <i>violacea</i> hybrid var. Hort.	7	DE VILMORIN et SIMONET, 1927a, 1928.
„ <i>violacea</i> „ <i>Superbissi-</i> <i>ma</i> ”	14	DE VILMORIN et SIMONET, 1927a 1928.
<i>Datura fastuosa</i> L.	12	DE VILMORIN & SIMONET, 1927a 1928.
„ <i>ferox</i>	12	BLAKESLEE, 1928.
„ <i>Leichardtii</i>	12	„ „
„ <i>meteloides</i>	12	„ „
„ <i>meteloides</i> D.C.	12	DE VILMORIN & SIMONE T, 1927 1928
„ <i>quercifolia</i>	12	BLAKESLEE, 1928.
„ <i>Stramonium</i> ⁴⁾		24 BLAKESLEE, BELLING & FARN- HAM, 1923.
	12	BELLING, 1927a, d; BLAKESLEE 1928.
„ <i>Stramonium</i> (haploid) ⁴⁾	12	BLAKESLEE, MORRISON, AVERY 1927; BELLING, 1927a, d.
	12 ⁵⁾	BELLING & BLAKESLEE, 1927.
„ <i>Stramonium</i> (mutants) ⁴⁾	11+1 ₁	BELLING, 1927a, d.
	11+1 ₃	BELLING, 1927a, d; GAGER & BLAKESLEE, 1927 ⁶⁾ .
	11+2	GAGER & BLAKESLEE, 1927 ⁶⁾
	12 ₄	BLAKESLEE, BELLING & FARN- HAM, 1923, BELLING, 1927d.
	11 ₃ +1 ₂	BELLING, 1927d.

¹⁾ The extreme types of this polymorphic race showed no differences in chromosome number but in chromosome form. In zygomorphic flowers satellites might be found but in normal flowers rarely. Variation in the gametic chromosome sets occur at the heterotypic metaphase.

²⁾ Besides cells showing normal arrangement as 7 pairs, there were cells showing 6 paired + 2 univalents. Irregularities in division also occurred.

³⁾ In large purple flowers of this strain the chromosomes were larger than in the small lilac flowers.

⁴⁾ For earlier references, see GAISER, 1926, pp. 436—437.

⁵⁾ From this 1A haploid line, all the balanced chromosomal types, as well as all primary and secondary (2n + 1) types, have been obtained.

⁶⁾ As a result of radium emanations, GAGER & BLAKESLEE (1927) produced 2n + 1 and 2n + 2 chromosomal types.

SOLANACEAE (continued)	n	2n	
<i>Datura</i> (continued)			
<i>Datura Stramonium</i> (Primary Mutants) ¹⁾ :		25	BELLING & BLAKESLEE, 1926.
<i>Buckling, Cocklebur, Echinus</i>			
<i>Elongate, Globe, Glossy,</i>			
<i>Ilex, Microcarpic, Poinsettia, Reduced, Rolled . . .</i>		25	BLAKESLEE given by DAVENPORT, 1924, 1926; BLAKESLEE, 1925.
<i>Globe</i>		26	BLAKESLEE given by DAVENPORT, 1926.
<i>Divergent</i>		25	BLAKESLEE given by DAVENPORT, 1926.
<i>Reduced</i>		26	BLAKESLEE given by DAVENPORT, 1926.
<i>Spinach</i>		25	BLAKESLEE, given by DAVENPORT, 1924, 1926.
<i>Datura Stramonium „Nubbin”</i> ²⁾		25	BLAKESLEE given by DAVENPORT, 1925, 1926; GAGER & BLAKESLEE, 1927.
„ <i>Stramonium „Poinsettia”</i>		25	BLAKESLEE & FARNHAM, 1923.
„ <i>Stramonium „Wiry”</i> .	24 + $\frac{1}{2}$		BLAKESLEE given by DAVENPORT, 1924; BLAKESLEE, 1925.
„ <i>Stramonium</i> (Secondary Mutants) ¹⁾ . . .		25	BELLING & BLAKESLEE, 1926.
<i>Maple, Mutilated, Polycarpic, Strawberry, Sugarloaf, Undulate, Wedge</i>		25	BLAKESLEE given by DAVENPORT, 1924, 1925, 1926; BLAKESLEE, 1925.
<i>Dwarf, Scalloped, Smooth . .</i>		25	BLAKESLEE, 1925; BLAKESLEE, given by DAVENPORT, 1925, 1926.
one secondary mutant . . .	24 + $\frac{1}{2}$		BELLING, 1927a.
<i>Datura Stramonium „Hedge”</i> .		25	BLAKESLEE given by DAVENPORT, 1926.
„ <i>Stramonium „Pinched”</i>		25	BLAKESLEE given by DAVENPORT, 1926.
„ <i>tatula</i>	12		VON BOENICKE, 1911
„ <i>Leichardtii</i> × <i>D. meteloides</i>	12		BLAKESLEE, 1928.

¹⁾ For earlier references, see GAISER 1926, pp. 436—437.

²⁾ „Nubbin” was found to be a compound chromosomal type containing the ordinary 2n set of chromosomes plus a chromosome consisting of 1/2 mutilated plus 1/2 strawberry. (BLAKESLEE, 1927).

SOLANACEAE (continued)

Datura (continued)

<i>Datura Leichardtii</i> × <i>D. quercifolia</i>	12	BLAKESLEE, 1928.
" <i>Stramonium</i> × <i>D. ferox</i>	12	" "
" <i>Stramonium</i> × <i>D. quercifolia</i>	12	" "
" <i>Stramonium</i> (2n = 48)		
× <i>D. Stramonium</i> (2n = 24)		24, 25, 35 BLAKESLEE, BELLING & FARNHAM, 1923.

SCROPHULARIACEAE

VERBASCUM ¹⁾Section I. *Lychnitis*Subsection I. *Lychnitidea*

<i>Verbascum austriacum</i> SCHOTT.	16 ²⁾	HÅKANSSON, 1926a.
" <i>Chaixii</i> VILL. . . . probably	16	" "
" <i>Lychnitis</i> L. . . .	16	" "
" <i>maurum</i> MAIRE & MURB.	32	" "
" <i>nigrum</i> L.	15	" "
" <i>Ternacha</i> HOCHST.	24	" "

Subsection II. *Blattarioides*

<i>Verbascum phoeniceum</i>	16	(PERINO) given by TISCHLER, 1916.
" <i>phoeniceum</i> L. . .	16	HÅKANSSON, 1926a.
" <i>pyramidatum</i> M.B.	16 ³⁾	" "

Section II. *Thapsus*Subsection I. *Blattaria*

<i>Verbascum Blattaria</i>	16	(PERINO) given by TISCHLER, 1916.
" <i>Blattaria</i> (white) .	15	30 HÅKANSSON, 1926a.
" <i>Blattaria</i> (yellow) .	16	" "
" <i>virgatum</i> WITH. . .		32 " "

Subsection II. *Euthapsi*

<i>Verbascum phlomoides</i>	16	(PERINO) given by TISCHLER, 1916.
"	16	32 NIKOLAEWA, 1925.
" <i>phlomoides</i> L. . . .	16	HÅKANSSON, 1926a.

¹⁾ The following species are classified under sections according to ENGLER & PRANTL

²⁾ The number of the chromosomes for this species was judged by the chromosome relations of one of its hybrids.

³⁾ The number of chromosomes for this species was calculated from the chromosome number of *V. densiflorum* (n = 16), which is the hybrid *V. phoeniceum* (n = 16) × *V. pyramidatum*.

SCHROPHULARIACEAE (continued) n		2n	
<i>Verbascum thapsiforme</i> SCHRAD.		32	HÅKANSSON, 1926a.
" <i>Thapsus</i> L.	16 ¹⁾		" "
Section (?)			
<i>Verbascum montanum</i> SCHRAD	16		SCHMID, 1906.
" <i>pulverulentum</i> . .	16		(PERINO) given by TISCHLER, 1916.
CELSIA ²⁾			
Section I. Aulacospermae			
<i>Celsia brevipedicellata</i> ENGL. .	23		HÅKANSSON, 1926a.
" <i>keniensis</i> MURB.	23		" "
Section II. Bothrospermae			
Subsection I. Nefflea			
<i>Celsia orientalis</i> L.	24		" "
Subsection II. Arcturus			
Grex I. Mesantherae			
<i>Celsia arcturus</i> (L.) BOUCHE .	24		" "
" <i>horizontalis</i> MOENCH. .	20		" "
" <i>roripifolia</i> HAL.	21,	42	" "
	possibly 20		
" <i>rupestris</i> DAVIDOFF . .	24		" "
Grex II. Macrantherae .			
<i>Celsia Battandieri</i> MURB. . . .		46 or	" "
		possibly 48	" "
" <i>bugulifolia</i> (LAM.) J. and			
Sp. ³⁾	17		" "
" <i>cretica</i> L.	26		" "
" <i>Faurei</i> MURB.	23		" "
" <i>lyrata</i> (LAM.) G. DON. .	26		" "
" <i>maroccana</i> BALL.	25		" "
" <i>pontica</i> BOISS.		34	" "
Hybrids:			
<i>Verbascum austriacum</i> × <i>Cel-</i>			
<i>sia roripifolia</i> . .	$16 + \frac{4_1}{2}$		" "
" <i>Blattaria</i> × <i>Celsia</i>			
<i>bugulifolia</i> . . .	$15 + \frac{2_1^{4)} }{2}$		" "
" <i>Blattaria</i> × <i>Celsia</i>			
<i>maroccana</i> . . .	$15 + \frac{10_1^{5)} }{2}$		" "

¹⁾ Often only 17 chromosomes were seen.

²⁾ The following species are classified under sections according to MURBECK (1925).

³⁾ Various races had the same chromosome number.

⁴⁾ Yet the author says there were nearly always 6 to 8 univalents.

⁵⁾ In the embryo-sac-mother cells there were 9 bivalents and 13 univalents.

SCHROPHULARIACEAE (continued) n		2n	
<i>Verbascum</i> (continued)			
<i>Verbascum „densiflorum”</i> (V.			
<i>phoeniceum</i> × V.			
<i>pyramidatum</i>)	16 ¹⁾		HÅKANSON 1926a.
<i>Calceolaria mexicana</i>	30		SUGIURA, 1928a.
„ <i>pinnata</i>		50—52	HEITZ, 1926.
<i>Nemesia affinis</i>		(18)	„ 1927b.
„ <i>barbata</i>		(18)	„ „
„ <i>bicornis</i>		18	„ „
„ <i>compacta</i>		18	„ 1927a, 1927b.
„ <i>floribunda</i>		18	„ 1927b.
„ <i>foetens</i>		18	„ „
„ <i>hybrida</i>		18	„ 1927a, b.
„ <i>lilacina</i>		18	„ 1927b.
„ <i>strumosa</i>	9	18	„ 1927a.
	9		„ 1927b.
„ <i>versicolor</i>		ca. 18	„ 1927b.
„ <i>spec.</i>		(18)	„ „
<i>Cymbalaria hepaticifolia</i>	> 20		„ „
„ <i>muralis</i>		14	„ 1926, 1927a, b.
„ <i>pallida</i>		14	„ 1927a.
	7		„ 1927b.
<i>Elatinoides commutata</i>	14—16		„ „
„ <i>spuria</i>	14—16		„ „
<i>Linaria alpina</i>		12	„ „
„ <i>amethystea</i>		12	„ 1926, 1927b.
„ <i>anticaria</i>		12	„ 1926, 1927b.
„ <i>aparinoides</i>		12	„ „
„ <i>aquilens</i>		12	„ „
„ <i>arvensis</i>		12	„ „
„ <i>bipartita</i>		12	„ 1926, 1927b.
„ <i>Broussonnetii</i>		12	„ 1927b.
„ <i>capraria</i>		12	„ 1927a, b.
„ <i>chalepensis</i>		24	„ „ b.
„ <i>dalmatica</i>		12	„ 1926, 1927b.
	6		TJEBBES, 1928.
„ <i>delpinoides</i>		12	HEITZ, 1926, 1927b.
„ <i>genistifolia</i>		12	„ „ „
	6		TJEBBES, 1928.
„ <i>Hendersonii</i>		12	HEITZ, 1926, 1927b.
	6		TJEBBES, 1928.
„ <i>lineolata</i>		12	HEITZ, 1927b.
„ <i>macedonica</i>		12	„ 1926.

¹⁾ Either there were 16 bivalents, or 15 bivalents and 2 univalents, or 14 bivalents and 4 univalents.

SCROPHULARIACEAE (continued) n		2n	
<i>Linaria</i> (continued)			
<i>Linaria macroura</i>		12	HEITZ, 1926, 1927b.
" <i>maroccana</i>	6		" 1926, 1927a; TJEJBES, 1928.
" <i>maroccana</i>		12	HEITZ, 1927b.
" <i>melanantha</i>		12	" 1926, 1927b.
" <i>multipunctata</i>		12	" " "
" <i>Pancicii</i>		12+4	" 1927b.
" <i>Perezii</i>		12	" 1926, 1927a, b.
" <i>purpurea</i>		12	" 1926, 1927b.
" <i>reflexa</i>		12	" 1927a, b.
" <i>repens</i>	6		TJEJBES, 1928.
" <i>reticulata</i>		12	HEITZ, 1926, 1927b.
" <i>saxatilis</i>		12	" 1927b.
" <i>Sibthorpiana</i>		(12)	" "
" <i>spartea</i>		12	" "
" <i>striata</i>		12	" 1926, 1927b.
" <i>supina</i>		12	" 1927b.
" <i>triornithophora</i>		12	" 1926.
" <i>triphylla</i>	6		" 1927b.
" <i>tristis</i>	6		" 1926, 1927a.
" <i>versicolor</i>		12	" 1927b.
" <i>versicolor</i>		(12)	" 1927b.
" <i>vulgaris</i>		12	" 1926, 1927b.
	6		TJEJBES, 1928.
<i>Antirrhinum Asarina</i>		16-20	HEITZ, 1926.
" <i>Casabomela</i>		16	" 1927a.
" spec. <i>Casabomela</i>		16	" 1927b.
" <i>Cordoba</i>		16	" "
" spec. <i>Cordoba</i>	8		TISCHLER, 1920.
" <i>glutinosum</i> (= <i>molle</i>)		16	HEITZ, 1927b.
" <i>molle</i>	8		OSTENFELD, 1928.
" <i>hispanicum</i>	8		TISCHLER, 1920.
" <i>Huetii</i> (= <i>sempervirens</i>)		16	HEITZ, 1927a.
" <i>sempervirens</i>		16	" 1927b.
" <i>latifolium</i>	8		TISCHLER, 1921-22.
" <i>majus</i>	8		TISCHLER, 1920; BAUR, 1924; OSTENFELD, 1928; SALESCU, 1925.
		16	HEITZ, 1926, 1927b.
	8	16	TISCHLER, 1921-22.

SCROPHULARIACEAE (continued) n		2n	
<i>Antirrhinum</i> (continued)			
<i>Antirrhinum majus</i>	3 ¹⁾	16 ²⁾	STEIN, 1926.
„ <i>majus</i> (LÖWEN- MAUL)	3 ³⁾	16 ⁴⁾	STEIN, 1927.
„ <i>majus</i> L. var.	3		DE VILMORIN & SIMONET, 1927b
„ <i>orontium</i>		16	HEITZ, 1926, 1927b.
„ <i>spec. Segovia</i>		16	„ 1927b.
„ <i>siculum</i>		16	„ 1927a, b.
„ <i>tortuosum</i>		16	„ 1927a, b.
<i>Asarina procumbens</i>		13	HEITZ, 1927a, b.
<i>Chaenorrhinum littorale</i>		(14)	„ 1927b.
„ <i>organifolium</i>	7		„ 1927a, b
„ <i>viscidum</i>		14	„ „ b.
<i>Anarrhinum bellidifolium</i>		18	„ 1927b.
„ <i>laxiflorum</i>		13	„ 1927a, b.
<i>Maurandia antirrhiniflora</i>	12		„ 1927a.
		24	„ 1927b.
„ <i>Barclayana</i>		24	„ „
„ <i>Emeryana</i>		24	„ „
„ <i>erubescens</i>		(24)	„ „
„ <i>Purpusi</i>		24	„ „
„ <i>scandens</i> (= <i>Lophospermum scandens</i> DON.)	12		„ 1927a.
„ <i>scandens</i>		24	„ 1927b.
<i>Scrophularia vernalis</i>	20		HÄKANSSON, 1926b.
<i>Penstemon confertus</i>		ca. 16	HEITZ, 1927b.
„ <i>deustus</i>		16	„ „
„ <i>diffusus</i>	3		WINGE, 1925.
		14/16	HEITZ, 1927b.
„ <i>Hartwegii hybridus</i> <i>grandiflorus</i>	8		WINGE, 1925
„ <i>Hartwegii</i> BENTH. var. hort. <i>gloxinoides</i>	8		DE VILMORIN & SIMONET, 1927b
„ <i>heterophyllus</i>		ca. 16	HEITZ, 1927b.
„ <i>isophyllus</i>	3		WINGE, 1925.
		ca. 16	HEITZ, 1927b.

¹⁾ A number of irregularities in the division of the chromosomes in the pollen mother cells were observed in plants treated by radium.

²⁾ No irregularities in somatic divisions were found in radium-treated plants.

³⁾ In some of the forms resulting from radium treatment (as SH. Pf 1. = schmalblättrigen Hornchenpflanzen and FD. Pfl. = Farb und Form defekten Pflanzen) non-disjunction caused 7—9 chromosomes to be seen in the daughter chromosomes.

⁴⁾ No irregularities were found in the somatic divisions.

SCROPHULARIACEAE (continued) n		2n	
<i>Penstemon</i> (continued)			
<i>Penstemon unilateralis</i>		14-16	HEITZ, 1927b.
" <i>venustus</i>		14-16	" "
" <i>Watsonii</i>		(14)-16	" "
<i>Limosella aquatica</i> L.	18		SVENSSON, 1923.
VERONICA ¹⁾			
Section <i>Veronicastrum</i>			
<i>Veronica fruticans</i>	8		HUBER, 1927.
" <i>gentianoides</i>	24		" "
" <i>Gouani</i>	16(?) ²⁾		" "
Section <i>Alsinebe</i>			
<i>Veronica polita</i>	7		" "
" <i>Tournefortii</i>	14	25-28	" "
Section <i>Pseudolysimachia</i>			
<i>Veronica longifolia</i>		64-68	" "
" <i>spicata</i>	32(?)		" "
Section <i>Chamaedrys</i>			
<i>Veronica officinalis</i>	+16(?)	32-37	HUBER, 1927.
" <i>prostrata</i>	16		" "
Section <i>Beccabunga</i>			
<i>Veronica beccabunga</i>	9	18	" "
Section <i>Leptandra</i>			
<i>Veronica virginica</i>	17 ³⁾	ca. 33	" "
Section <i>Hebe</i>			
<i>Veronica diosmifolia</i>	+12	24	" "
Section (?)			
<i>Veronica Andersoni</i> HORT.	20		DE VILMORIN & SIMONET, 1927b
" <i>arvensis</i>		16-(18)	HEITZ, 1926.
" <i>azurca</i>		ca. 48	" "
" <i>opaca</i>		24-28	" "
" <i>speciosa</i> CUNN. var.			
<i>hort. Autumn Glory</i>	20		DE VILMORIN & SIMONET, 1927b.
" spec. var. <i>hort. Scarlet Gem</i>	20		DE VILMORIN & SIMONET, 1927b.
<i>Digitalis ambigua</i>	24	48	HAASE-BESSELL, 1921.
		28	HUSKINS, 1928b.
" <i>ambigua</i> MURR.	23	56	BUXTON & NEWTON, 1928.
" <i>gloxiniæflora</i>	12-13		WARREN, 1924.
" <i>lanata</i>	24	48	HAASE-BESSEL, 1921.
" <i>lutea</i>	48	96	" " 1916; 1921.

¹⁾ The following species are classified under sections according to ENGLER & PRANTL.

²⁾ As many as 18 chromosomes were found.

³⁾ 16 and 18 chromosomes were also found.

SCROPHULARIACEAE (continued) n		2n	
VERONICA (continued)			
	8		WARREN, 1924.
	48		HAASE-BESSELL, 1926.
<i>Digitalis micrantha</i>	24	48	" " 1921.
	24		" " 1926.
" <i>purpurea</i>	24	48	" " 1916; 1921.
	23	56	HUSKINS, 1923b.
" <i>purpurea</i> L.	23	56	BUXTON & NEWTON, 1923.
" <i>viridiflora</i>	23	56	HUSKINS, 1923b; BUXTON & NEWTON, 1923
" <i>ambigua</i> × <i>D. purpurea</i>	56	112	HUSKINS, 1923b.
" <i>lanata</i> × <i>D. lutea</i> . .	72 ₁		HAASE-BESSELL, 1921.
	2		
" <i>lanata</i> × <i>D. micrantha</i>	24		" " "
" <i>lutea</i> × <i>D. lanata</i> . .	72 ₁		" " "
	2		
" <i>lutea</i> × <i>D. micrantha</i>	36		" " " 1926.
" <i>lutea</i> × <i>gloxiniaeflora</i>	10-11		WARREN, 1924.
(„ <i>lutea</i> × <i>gloxiniaeflora</i>)			
× <i>Digitalis gloxiniae</i>			
<i>flora</i>	11-12		" "
(„ <i>lutea</i> × <i>gloxiniaeflora</i>)			
× <i>Digitalis lutea</i> . .	8-9		" "
" <i>purpurea</i> × <i>D. ambigua</i>	24		HAASE-BESSELL, 1921.
" <i>purpurea</i> × <i>ambigua</i>			
F ₁	28 ¹⁾	56	BUXTON & NEWTON, 1928.
" <i>purpurea</i> × <i>ambigua</i>			
F ₂ ²⁾		111-112 ³⁾	" " " "
" <i>purpurea</i> × <i>ambigua</i>			
F ₃		84	" " " "
" <i>purpurea</i> × <i>lutea</i> . .	72 ₁	72	HAASE-BESSELL, 1916.
	2		
<i>Lathraea clandestina</i>	21		GATES & LATTER, 1927.
" <i>squamaria</i>	21		" " " "
BIGNONIACEAE			
<i>Bignonia venusta</i>	ca. 25		DUGGAR, 1899.
<i>Tecoma Tagliabuana</i> Vis. . . .	20		DE VILMORIN & SIMONET, 1927b

¹⁾ The number of bivalents appearing in diakinesis was 5—12. The first meiotic division was extremely irregular, frequently all the chromosomes being drawn into a single „restitution” nucleus.

²⁾ These hybrids resulted from artificial self-fertilization.

³⁾ In one case there were only 102 chromosomes.

⁴⁾ These hybrids resulted from natural pollination.

OROBANCHACEAE

Orobanche minor 19 38 CARTER, 1923.

GESNERIACEAE

Ramondia nathaliae PANC. et

PETR. 18 GLISIC, 1924¹⁾.

" *serbica* PANC. 36 " "

Monophyllaea Horsfieldii 16 32 OELKERS, 1922.

Tydaea refulgens 24-28 HEITZ, 1926.

LENTIBULARIACEAE

n

2n

Pinguicula caudata 44 HEITZ, 1926.

" *vulgaris* ca. 50 ROSENBERG, 1909c.

PLANTAGINALES

PLANTAGINACEAE

Plantago acanthophylla (10)-12 HEITZ, 1927b²⁾:

" *albicans* 12 " "

" *alpina* 24 " "

" *amplexicaule* 10 " "

" *arenaria* (12) " "

" *aristata* (20) " "

" *Bellardii* 10 " "

" *cantschatica* (= *major*). 12 " "

" *Candollei* (12) " "

" *cornuti* 12 " "

" *coronopifolia* (12) " "

" *depressa* 12 EKSTRAND, 1918.

" *indica* (= *pumila*?) 12 HEITZ, 1927b.

" *insularis* (10)-12 " "

" *japonica* 12 SINOTO, 1925.

" *Lagopus* 12 HEITZ, 1927b.

" *lanceolata* 12 NĚMEC, 1910.

" *lanceolata* L.³⁾ 6 TJEJBES, 1928.

" *lusitanica*. 12 HEITZ, 1927b.

" *major* 6 EKSTRAND, 1918.

" *major* L. 6⁴⁾? LEVITSKY, 1928.

" *major* var. *asiatica* . ca. 12 (MIYAJI) given by ISHIKAWA, 1916.

12 24 SINOTO, 1925.

" *major* var. *asiatica* f.

¹⁾ According to SCHÜRHOFF, 1926.

²⁾ Though HEITZ gives the haploid numbers as half of the above numbers (diploid), I have chosen to give these, since his figures are all of somatic cells showing the diploid chromosome sets.

³⁾ Though several forms were investigated, no variation was found.

⁴⁾ By applying wound stimuli to the anthers of *Plantago major* L. in the stage of reduction division, the number of chromosomes was decreased in some cells and increased in others.

PLANTAGINACEAE (continued)		n	2n	
<i>Plantago</i> (continued)				
	<i>contracta</i>		24	(MIYAJI) given by ISHIKAWA, 1916.
	<i>Plantago maritima</i>	6	12	EKSTRAND, 1918.
	„ <i>maxima</i>		12	HEITZ, 1927b.
	„ <i>montana</i>		12	„ „
	„ <i>ovata</i>		8	„ „
	„ <i>palmata</i>		20-24	„ „
	„ <i>psyllium</i>	6		EKSTRAND, 1918.
			(12-14)	HEITZ, 1927b.
	„ <i>saxatilis</i>		12	„ „
	„ <i>Schwartzenbergiana</i>		12	„ „
	„ <i>sericea</i>		12-14	„ „
	„ <i>sarraria</i>		10-12	„ „
	„ <i>suffruticosa</i>		12	EKSTRAND, 1918.
	„ <i>tibetica</i>		12	HEITZ, 1927b.
	„ <i>virginica</i>		12	„ „
RUBIALES				
RUBIACEAE				
	<i>Houstonia caerulea</i>	16		STEVENS, 1912.
	<i>Coffea arabica</i>	8	16	VON FABER, 1912.
	„ <i>liberica</i>	8	16	„ „ „
	<i>Crucianella gilanic</i>	10		LLOYD, 1902.
	„ <i>macrostachya</i>	10		„ „
	<i>Asperula cynanchia</i>	12		„ „
CAPRIFOLIACEAE				
	<i>Sambucus nigra</i> L.	18		VON BOENICKE, 1911.
	„ <i>nigra</i>	18		KLEINMAN, 1923.
	„ <i>nigra</i> var. <i>aurea</i>	18		WINGE, 1917.
	„ <i>nigra</i> var. <i>linearis</i>	18		„ „
	„ <i>racemosa</i>	18		LAGERBERG, 1909.
	„ <i>alseuosmoides</i> GRAEB.	18		DE VILMORIN & SIMONET, 1927b
	„ <i>stabiana</i> GUSS.	9		„ „ „ „ „
ADOXACEAE				
	<i>Adoxa moschatellina</i> L.	18	36	LAGERBERG, 1909.
VALERIANACEAE				
	<i>Patrinia rupestris</i>	11		ASPLUND, 1920.
VALERIANA ¹⁾				
Section <i>Exaltatae</i>				
	<i>Valeriana exaltata</i> MIK.		14 ²⁾	SENJANINOVA, 1927.
Section <i>Dubiae</i>				
	<i>Valeriana rossica</i> P. SMIRN.		28 ²⁾	SENJANINOVA, 1927.

¹⁾ These sections („Zyklus“) are according to SMIRNOV, 1927.

²⁾ Two chromosomes possessed satellites.

VALERIANACEAE (continued)		
Section <i>Sambucifoliae</i>		
<i>Valeriana excelsa</i> POIR . . .	n	2n
" <i>Wolgensis</i> L. KAZA- KEWITSCH		56 ¹⁾ SENJANINOVA, 1927 28 ²⁾ " "
Section (?)		
<i>Valeriana dioica</i> L	8 ³⁾	MEURMAN, 1925a, b
" <i>montana</i>	16	ASPLUND, 1920.
" <i>officinalis</i> L.	14	MEURMAN, 1925a, b.
" <i>officinalis</i>	32 ⁴⁾	ASPLUND, 1920.
" <i>officinalis</i> = <i>Valeri-</i> <i>na salina</i> PLEIJEL	28	MEURMAN, 1925b.
" <i>phu</i>	24	ASPLUND, 1920.
" <i>salina</i> PLEIJEL	28	" "
<i>Centranthus macrosiphon</i>	16	" "
DIPSACACEAE		
<i>Morina longifolia</i>	16	RISSE, 1928.
<i>Cephalaria alpina</i>	8	" "
" <i>ambrosoides</i>	8	" "
" <i>leucantha</i>	8	" 1926, 1928.
" <i>tatarica</i>	8	" 1928.
" <i>transsilvanica</i>	8	" "
<i>Dipsacus fullonum</i>	8	" "
" <i>laciniatus</i>	8	" "
" <i>silvester</i>	8	" 1926, 1928.
<i>Succisa australis</i>	8	" "
" <i>pratensis</i>	8	" "
<i>Knautia arvensis</i>	8	" " 1928.
" <i>atrorubens</i>	8	" 1928.
" <i>hybrida</i>	8	" "
" <i>magnifica</i>	8	CHIARUGI, 1927c.
" <i>orientalis</i>	8	RISSE 1928.
" <i>silvatica</i>	8	" 1926, 1928.
" <i>silvatica</i> var. <i>dipsaci-</i> <i>jolia</i>	24	CHIARUGI, 1927c.
<i>Scabiosa acrantha</i>	8	RISSE, 1926.
" <i>atropurpurea</i>	8	" " 1928.
" <i>caucasica</i>	8	" 1928.
" <i>Columbaria</i>	8	" 1926, 1928.

¹⁾ Satellites could not be discovered.

²⁾ Two chromosomes possessed satellites.

³⁾ A pair of heterochromosomes was found: $3n = 7 + x$ or $7 + Y$.

⁴⁾ MEURMAN (1925b) reexamined some of ASPLUND's material and found 28 to be the correct number. He considered it probable that of the two forms of *Valeriana officinalis* L. ASPLUND had fixed plants identical with the coastal form held by PLEIJEL (1925) to be an independent form *Valeriana salina* PLEIJEL.

DIPSACACEAE (continued)

Scabiosa (continued)

	n	2n
<i>Scabiosa daucoides</i>	8	RISSE, 1926, 1928.
" <i>gramuntia</i>	8	" 1928.
" <i>japonica</i>	8	TAHARA, 1915, given by ISHI-KAWA 1916.
" <i>maritima</i>	8	RISSE, 1926, 1928.
" <i>micrantha</i>	8	" " "
" <i>ochroleuca</i>	8	" 1928.
" <i>prolifera</i> (?)	8(?)	" 1926.
	8	" 1928.
" <i>stellata</i>	8	" 1926, 1928.

CUCURBITALES

CUCURBITACEAE

<i>Bryonia alba</i> L.	10	VON BOENICKE, 1911; MEURMAN, 1925b.
" <i>dioica</i>	10	STRASBURGER, 1910c.
" <i>dioica</i> JACQ.	12	MEURMAN, 1925b.
" <i>alba</i> × <i>B. dioica</i>	12	TISCHLER, 1906.
<i>Citrullus vulgaris</i> L. ¹⁾	22	KOZHUKHOW, 1925.
<i>Cucumis maxima</i> DUCH.	48	" "
" <i>melo</i> L. var. <i>reticulatus</i> ALEF.	24	" "
" <i>moschata</i> DUCH.	48	" "
" <i>pepo</i> L. var. <i>pomiformis</i> var. <i>aurantia</i> ALEF.	40	" "
" <i>pepo</i> L. var. <i>gr. citrullina</i> ALEF.	42	" "
" <i>sativus</i> L. ²⁾	14	" "
" <i>sativus</i> L. ³⁾	7	14 HEIMLICH, 1927.
" <i>sativus</i> L. var. <i>Selenka</i>	14 ⁴⁾	KOSHUCHOW, 1927, 1928.
<i>Trichosanthes japonica</i> REGEL.	11 ⁵⁾	SINÔTO, 1928a.
<i>Cucurbita maxima</i>	20	CASTETTER, 1926.
" <i>pepo</i> ⁶⁾	14	LUNDEGARDH, 1914b.
<i>Micrampelis lobata</i> (MICHX.) GREENE	16	KIRKWOOD, 1907.

CAMPANULACEAE

<i>Symphyandra Hofmanni</i> PANT.	17	DEVILMORIN & SIMONET, 1927b.
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¹⁾ Cells showing 44 chromosomes (syndiploid) were found.

²⁾ „Syndiploid” cells with 28 chromosomes, arranged in pairs, were found.

³⁾ This was a white-spined variety.

⁴⁾ Tetraploid and octoploid numbers were found as a result of treatment of seedlings by higher and lower temperatures than the optimal for germination.

⁵⁾ A pair of unequal chromosomes was distinguishable.

⁶⁾ FLACH (1924) found 27—32 prochromosomes in *Cucurbita pepo*.

CAMPANULACEAE (continued)	n	2n	
<i>Campanula isophylla</i> MORETTI.	16		DEVILMORIN & SIMONET, 1927b
„ <i>latifolia</i> L. var.			
„ <i>grandiflora</i> HORT.	17		„ „ „ „
„ <i>longistyla</i> FOMINE .	17		„ „ „ „
„ <i>nitida</i>	8	16	GAIRDNER, 1926.
„ <i>persicifolia</i>	8		MARCHAL, 1920.
	8	16	GAIRDNER, 1926.
„ <i>persicifolia</i> („Telham Beauty”) . .	16	32	„ „
„ <i>punctata</i> LAM. . .	17		DEVILMORIN & SIMONET, 1927b.
„ <i>pyraversi</i> HORT. CA YEUX.	17		„ „ „ „
„ <i>rapunculoides</i> L. var. <i>grandiflora</i> HORT.	51		„ „ „ „
„ <i>Van Houttei</i> CARR.	17		„ „ „ „
„ <i>nitida</i> × <i>C. persicifolia</i> („Telham Beauty”)		24	GAIRDNER, 1926.
„ <i>persicifolia</i> „Telham Beauty” × <i>C. nitida</i>		24 ¹⁾	„ „
„ <i>persicifolia</i> „Telham Beauty” × <i>C. persicifolia</i> . . .		24-25 ²⁾	
<i>Phyteuma spicata</i>	18		ARMAND, 1912.
<i>Lobelia cardinalis</i> L.	7		DEVILMORIN & SIMONET, 1927b.
„ <i>cliffortiana</i> L.	7		„ „ „ „
„ <i>Dortmanna</i>	8		ARMAND, 1912.
„ <i>Erinus</i>	8		„ „
„ <i>Erinus</i> L. HORT. . . .	14		DEVILMORIN & SIMONET, 1927b.
„ <i>Erinus</i> L. var. <i>Crystal-Palace</i> HORT.	21		„ „ „ „
„ <i>Erinus</i> L. var. <i>Lindleyana</i> HORT.	14		„ „ „ „
„ <i>Erinus</i> L var <i>saphir pendula</i> HORT . .	21		„ „ „ „
„ <i>Erinus</i> L var <i>speciosa grandiflora</i> HORT. . .	21		„ „ „ „
„ <i>Erinus</i> L. var. <i>superba</i> HORT.	21		„ „ „ „
„ <i>syphilitica</i> L.	7		„ „ „ „
„ <i>Tupa</i> L.	21		„ „ „ „

¹⁾ Two other plants had (28—30)? and (16)? chromosomes, respectively.

²⁾ One plant had 32 chromosomes.

CAMPANULACEAE (continued)		n	2n	
<i>Lobelia</i> (continued)				
<i>Lobelia urens</i>	8			ARMAND, 1912.
" <i>urens</i> L.	7			DEVILMORIN & SIMONET, 1927b.
CALYCERACEAE				
<i>Acicarpa tribuloides</i> Juss. . ca.	8			DAHLGREN, 1915.
COMPOSITAE				
<i>Ageratum conyzoides</i>	10			ISHIKAWA, 1911b, 1916.
<i>Eupatorium ageratoides</i>	17			HOLMGREN, 1919.
" <i>cannabinum</i>	10			" "
" <i>glandulosum</i>	51	51		" "
	<u>2</u>			
" <i>ianthinum</i>	10			" "
" <i>petiolatum</i>	ca.17			" "
" <i>Purpusi</i>	17			" "
<i>Grindelia squarrosa</i>	6	12		HOWE, 1926.
<i>Solidago canadensis</i>	9			CARANO, 1921.
" <i>Riddellii</i>	18			" "
<i>Bellis perennis</i>	9			ISHIKAWA, 1911b, 1916; WINGE, 1917.
		18		HEITZ, 1926.
<i>Asteromoea indica</i>	9			TAHARA & SHINOTOMAI, 1926.
" <i>indica</i> var. <i>Pinna-</i>				
<i>tifidus</i>	9			" " " "
" <i>Savatieri</i>	9			" " " "
<i>Callistephus chinensis</i>	9			" " " "
<i>Aster fastigiatus</i>	9			" " " "
" <i>Glehni</i>	9			" " " "
" <i>novae angliae</i>	5			CARANO, 1921.
" <i>scaber</i>	9			TAHARA & SHIMOTOMAI, 1926.
" <i>tartaricus</i>	27			" " " "
" <i>trinervius</i> var. <i>adustus</i> . .	18			" " " "
" <i>trinervius</i> var. <i>genuinus</i> .	18			" " " "
" <i>Tripolium</i>	9			" " " "
" <i>viscidulus</i>	9			" " " "
<i>Melitella pusilla</i>	4			CHIARUGI, 1926b.
" <i>pusilla</i> SOMM.	5			" 1927a.
<i>Erigeron alpinus</i> L.	9			" 1926b, 1927a.
" <i>annuus</i> PERS.	13	26		TAHARA, 1915d.
" <i>annuus</i> PERS.		26 ¹⁾		" 1921.
" cfr. <i>annuus</i>	4 + 19 ₁	27		HOLMGREN, 1919.
	<u>2</u>			
" <i>bonariensis</i>	27			HOLMGREN, 1919.
" <i>dubius</i> MAKINO	9			TAHARA, 1921.

¹⁾ In the endosperm cells 52 chromosomes were found.

COMPOSITAE *	n	2n	
<i>Erigeron</i> (continued)			
<i>Erigeron dubius</i> var. <i>glabrata</i>	9		(TAHARA, 1916), given by ISH- IKAWA, 1916.
" <i>eriocephalus</i>	9		HOLMGREN, 1919.
" <i>glabellus</i>	9		" " CARANO 1921
" <i>Karvinskianus</i> var.			
<i>mucronatus</i>	14-18	32-34	CARANO, 1921.
	ca. 16	32-34	" 1924.
" <i>linifolius</i> probably			
	27		HOLMGREN, 1919.
" <i>linifolius</i> WILD.	26	ca. 52	TAHARA, 1921.
" <i>macranthus</i>	13-15		HOLMGREN, 1919.
" <i>politus</i>	9		" "
" <i>unalaschkensis</i>	18		" "
<i>Antennaria alpina</i>		48-52	JUEL, 1900a.
" <i>dioica</i>	12-14	24-28	" "
	13		HOLMGREN, 1919.
<i>Silphium integrifolium</i> MICHX.	8		MERRELL, 1900.
		ca. 16	LAND, 1900.
" <i>laciniatum</i> L.		ca. 16	" "
" <i>perfoliatum</i> L.		14	TAYLOR, 1926.
" <i>terebinthinaceum</i> L.		ca. 16	LAND, 1900.
<i>Xanthium inflexum</i>	18		SYMONS, 1926.
" <i>italicum</i>	18		" "
" <i>pennsylvanicum</i>	18		" "
" <i>strumarium</i>	18		ISHIKAWA, 1916.
" <i>inflexum</i> × <i>X. ita-</i>			
<i>licum</i>	18		SYMONS, 1926
<i>Zinnia elegans</i>	12		ISHIKAWA, 1911b, 1916.
<i>Wedelia prostrata</i>	15		" 1916.
<i>Helianthus annuus</i> L.	16(?)		VON BOENICKE, 1911.
" <i>annuus</i>		34	TAHARA, 1915a.
		34 ¹⁾	PROZINA, 1925.
<i>Dahlia coronata</i> „Coronata”	16		ISHIKAWA, 1911a.
" <i>coronata</i>	16		" 1911b.
		32	" 1916.
" <i>gracilis</i> (?) „Camelia”	32		" 1911a.
" <i>imperialis</i>	16		BELLING, 1925d.
" <i>juarezii</i> „Juarezii”	32		ISHIKAWA, 1911a.
" (?) „Citronen Vogel”	32		" "
" (?) „Collettere”	32		" "
" (?) „Gloria”	32		" "
" (?) „Hanza”	32		" "

¹⁾ One pair of chromosomes was provided with small satellites.

COMPOSITAE (continued)	n	2n	
<i>Dahlia</i> (continued)			
<i>Dahlia</i> (?) „Leopold”	32		ISHIKAWA, 1911a.
„ (?) „Oertel”	32		„ „
„ (some single dahlias)	32		„ „
„ (vars.)	32		„ 1911b.
„ (vars.) (believed to be from <i>D. variabilis</i> and <i>D. coccinea</i>	32		„ 1916.
<i>Hemizonia congesta</i> subspecies			
<i>lutescens</i>	12	24	BABCOCK & HALL, 1924.
„ <i>congesta</i> subspecies			
<i>lusulaefolia</i>	12	24	„ „ „ „
„ <i>congesta</i> subspecies			
<i>typica</i>	12	24	„ „ „ „
„ <i>corymbosa</i> (D.C.) T. & G.	10	20	„ „ „ „
<i>Anthemis alpina</i> L.	9		CHIARUGI, 1926b, 1279a.
„ <i>tinctoria</i>	9		LUNDEGARDH, 1909; HOLM- GREN, 1915.
<i>Anacyclus pyrethrum</i> DC.		18	RAVES, 1926.
<i>Achillea Clavenae</i>	9		CHIARUGI, 1927a.
„ <i>millefolium</i>	ca. 24		LUNDEGARDH, 1909.
<i>Matricaria ambigua</i>	9		(TAHARA 1916) given by ISHI- KAWA, 1916.
„ <i>ambigua</i> LEDEB.	9		TAHARA, 1921.
„ <i>chamomilla</i>	9		LUNDEGARDH, 1909; BEER, 1912.
<i>Chrysanthemum alpinum</i> L.	18		CHIARUGI, 1926b.
„	18	36	„ 1927a, 1927b.
„ <i>arcticum</i>	45		TAHARA, 1915b.
„ <i>arcticum</i> L.	45		„ 1915c, 1921.
„ <i>carinatum</i>	9		„ 1914, 1915b.
„ <i>carinatum</i> SCHOUB.	9		„ 1915c, 1921.
„ <i>cinerariifolium</i> BROCC.	9		„ 1921
„ <i>coronarum</i>	9		„ 1914, 1915b.
„ <i>coronarum</i> L.	9		„ 1915c, 1921.
„ <i>Decaisneanum</i>	36		„ 1915b.
„ <i>Decaisneanum</i> MATSUM.	36(?)		„ 1915c.
„	36		„ 1921.
„ <i>hakusanense</i>	27		(TAHARA 1916), given by ISHI- KAWA, 1916.

COMPOSITAE (continued)	n	2n
<i>Chrysanthemum</i> (continued)		
<i>Chrysanthemum hakusanense</i>		
MAK.	27	TAHARA, 1921.
" <i>indicum</i>	18	(TAHARA 1916) given by ISHIKAWA, 1916.
" <i>indicum</i> L. . . .	18	TAHARA, 1921
" <i>japonicum</i>	9	" 1914, 1915b.
" <i>japonicum</i> MAK.	9	TAHARA, 1915c, 1921.
" <i>lavandulaefolium</i>	9	" 1914, 1915b; TAHARA & SHIMOTOMAI, 1927.
" <i>lavandulaefolium</i> MAK. . . .	9	TAHARA, 1915c, 1921.
" <i>Leucanthemum</i> L.	18	" 1915b.
" <i>Leucanthemum</i> L.	18	" 1915c, 1921.
" <i>lineare</i>	9	(" 1916) given by ISHIKAWA, 1916.
" <i>lineare</i> MATSUM.	9	TAHARA, 1921.
" <i>marginatum</i>	45	(TAHARA, 1916) given by ISHIKAWA, 1916, TAHARA & SHIMOTOMAI, 1927.
" <i>marginatum</i> Miq.	45	TAHARA, 1921.
" <i>Marchalii</i> ASCHERS.	9	TAHARA, 1915c.
" <i>Marschallii</i>	9	" 1915b.
" <i>moriifolium</i>	27	" "
" <i>moriifolium</i> RAM.	27	" 1915c, 1921.
" <i>myconis</i>	9	(TAHARA 1916) given by ISHIKAWA, 1916.
" <i>myconis</i> L.	9	TAHARA, 1921.
" <i>nipponicum</i>	9	" 1914, 1915b.
" <i>nipponicum</i> FRANCH.	9	" 1915c, 1921.
" <i>roseum</i>	9	" 1914.
" <i>roseum</i> WEBB. et MOHR.	9	" 1921.
" <i>segetum</i>	9	(TAHARA 1916) given by ISHIKAWA, 1916.
" <i>segetum</i> L.	9	TAHARA, 1921.

COMPOSITAE (continued)	n	2n	
<i>Chrysanthemum</i> (continued)			
<i>Chrysanthemum hybridum</i>			
Hort. Jap.	27		TAHARA, 1921.
" hybridum			
" „Shasta Daisy”	45+40 ₁		„ „
	$\frac{2}{2}$		
" marginatum ×			
<i>C. lavandulaefolium</i>			
"	36	72	TAHARA & SHIMOTOMAI, 1927.
<i>Tanacetum vulgare</i>	9		ROSENBERG, 1905.
<i>Centipeda orbicularis</i>	10		ISHIKAWA, 1911b, 1916.
<i>Artemisia absinthium</i>	9		WEINEDL-LIEBAU, 1928.
" annua	9		„ „ „
" campestris	9		„ „ „
" cina	9		„ „ „
" dracunculus	9		„ „ „
" maritima	9		„ „ „
" nitida BERTOL.		27	CHIARUGI, 1926a.
" pontica	9		WEINEDL-LIEBAU, 1928.
" vulgaris	9		„ „ „
<i>Senecio nikoensis</i>	10		ISHIKAWA, 1916.
<i>Ligularia tussilaginea</i>	30		MIYAJI, 1913.
" tussilaginea var. cris-			
pata	30, 31		„ „
<i>Calendula officinalis</i>		24	LUNDEGARDH, 1909.
" spec.	16	32	ROSENBERG, 1907b.
<i>Echinops sphaerocephalus</i> L.	16		PODDUBNAJA, 1927.
<i>Carduus crispus</i> L.	8		„ „
<i>Saussurea affinis</i>	18		ISHIKAWA, 1911b, 1916.
<i>Centaurea cyanus</i> L.	12		PODDUBNAJA, 1927.
<i>Lampsana apogonoides</i>	22		ISHIKAWA, 1911b, 1916.
" humilis	8		ISHIKAWA, 1916.
<i>Picris hieracioides</i>	5		ISHIKAWA, 1911b, 1916.
<i>Helminthia echinoides</i>	4		MARCHAL, 1920.
CREPIS ¹⁾			
Section <i>Anisoderis</i> Cass.			
<i>Crepis alpina</i>	4		MARCHAL, 1920.
		10	ROSENBERG, 1920; MANN,
			1922; NAWASCHIN, M., 1925a
			1927a, d, e.
" alpina L.	5	10	MANN, 1925.
	5		BABCOCK & LESLEY, 1926.

¹⁾ The arrangement under sections is as BABCOCK & LESLEY (1926) have rearranged that of HOFFMANN in ENGLER and PRANTL.

COMPOSITE (continued)	n	2n	
<i>Crepis</i> (continued)			
<i>Crepis foetida</i>	4	8	ROSENBERG, 1918.
	4		MARCHAL, 1920.
		10	MANN, 1922.
	5		LESLEY, M. 1925.
" <i>foetida</i> L.	5		BABCOCK & LESLEY, 1926.
" <i>rubra</i>	5	10	ROSENBERG, 1918.
	4		MARCHAL, 1920.
		10	MANN, 1922; NAWASCHIN, M., 1925a.
" <i>rubra</i> L.	5		BABCOCK & LESLEY, 1926.
Section <i>Barkhausia</i> MICHX.			
<i>Crepis bursifolia</i>		8	MANN, 1922.
" <i>bursifolia</i> L.	4	8	" " 1925.
	4		BABCOCK & LESLEY, 1926.
" <i>setosa</i>		8	MANN, 1922.
" <i>setosa</i> HALL.		8	TAYLOR, 1925c.
	4	8	MANN, 1925.
	4		COLLINS & MANN, 1923; LESLEY & HALL, 1926.
" <i>taraxacifolia</i>	6	12	BEER, 1912.
	4	8	DIGBY, 1914.
		8	MANN, 1922.
" <i>taraxacifolia</i> THUILL.	4	8	" 1925.
	4		BABCOCK & LESLEY, 1926.
Section <i>Nemauchenes</i> CASS.			
<i>Crepis aspera</i>	4		MARCHAL, 1920.
		8	MANN, 1922; NAWASCHIN, M., 1927c.
" <i>aspera</i> L.	4	8	MANN, 1925.
	4		BABCOCK & LESLEY, 1926.
" <i>amplexifolia</i>		8	MANN, 1922.
" <i>amplexifolia</i> WILLK.	4	8	" 1925.
" <i>amplexifolia</i> (GODR.) WILLK.	4		BABCOCK & LESLEY, 1926.
Section <i>Gaytonia</i> , <i>Cymbosera</i> BOISS. & <i>Phaeacium</i> BOISS.			
<i>Crepis dioscoridis</i>	4		MARCHAL, 1920.
		8	MANN, 1922.
" <i>dioscoridis</i> L.	4	8	" 1925.
		8 ¹⁾	NAWASCHIN, M., 1925a, 1926.
	4		BABCOCK & LESLEY, 1926.

¹⁾ One pair of chromosomes (D) had satellites (NAWASCHIN, M., 1926).

COMPOSITAE (continued)	n	2n	
<i>Crepis</i> (continued)			
„ <i>palaestina</i> Boiss.	4	8	MANN, 1925.
„ <i>palaestina</i> (BORNH.) . . .	4		BABCOCK & LESLEY, 1926.
„ <i>pulchra</i>	4	8	ROSENBERG, 1918.
		8	ROSENBERG, 1920; MANN, 1922
„ <i>pulchra</i> L.	4	8	MANN, 1925.
	4		BABCOCK & LESLEY, 1926.
Section <i>Eucrepis</i> D.C.			
<i>Crepis virens</i>	3	6	ROSENBERG, 1909a, 1918; BEER 1912; DIGBY, 1914; MAR- CHAL, 1920.
		6	GRÉGOIRE, 1912.
	3		DE SMET, 1914.
„ <i>virens</i> L.		6	DE LITARDIÈRE, 1923a; NAWA- SCHIN, M., 1925a.
„ <i>virens</i> f. <i>agrestis</i> W. K. .	3		DAHLGREN, 1920.
„ <i>capillaris</i>		6 ¹⁾	BABCOCK & COLLINS, 1920a; MANN, 1922; NAWASCHIN, S., 1926; NAWASCHIN, M., 1927c.
		3 ²⁾	HOLLINGSHEAD, 1928b.
„ <i>capillaris</i> L. (.) WALLR. .		9, 15 ³⁾	NAWASCHIN, M., 1925b.
		6, 7, 9, 15 ⁴⁾	„ „ 1926.
		6	TAYLOR, 1925c, 1926.
	3		BABCOCK & COLLINS, 1920b; COLLINS & MANN, 1923; BAB- COCK & LESLEY, 1926.
„ <i>neglecta</i>	4	8	ROSENBERG, 1918.
		8	MANN, 1922.
„ <i>neglecta</i> L.	4	8	„ 1925.
	4		BABCOCK & LESLEY, 1926.
„ <i>parviflora</i>	4	8	ROSENBERG, 1918.
		8	MANN, 1922; NAWASCHIN, M., 1925a.
„ <i>parviflora</i> DESF.	4	8	MANN, 1925.
	4		BABCOCK & LESLEY, 1926.

¹⁾ In 112 metaphases in root-tip cells, out of 768 examined, S. NAWASCHIN (1926) found association of homologous chromosomes.

²⁾ Two haploid plants appeared in F_1 of *C. capillaris* × *C. tectorum* after being subjected to low temperature. In the roots of one, diploid plates were found.

³⁾ Two mutants, one triploid ($2n = 9$), and one pentaploid ($2n = 15$), were found.

⁴⁾ Of 2,000 plants examined, 11 had $3n$, one had $5n$, and one had $2n + 1$ chromosomes. One cell of a root-tip had $128n$ (> 500) chromosomes. Also a tetraploid sector was found in a diploid root. In diploid cells, one pair of chromosomes (D) had satellites.

COMPOSITAE (continued)	n	2n	
<i>Crepis</i> (continued)			
<i>Crepis tectorum</i>	4	8	JUEL, 1905.
		8 ¹⁾	ROSENBERG, 1920; MANN, 1922; NAWASCHIN, M., 1925a, 1927a, d; NAWASCHIN, S., 1926.
„ <i>tectorum</i> L.	4	8	MANN, 1925.
	4		BABCOCK & COLLINS, 1920b; BABCOCK & LESLEY, 1926.
		8	BABCOCK & COLLINS, 1920a; NAWASCHIN, M., 1927e.
		6, 8+12,	NAWASCHIN, M., 1926.
		16 ²⁾	
„ <i>biennis</i>	20		ROSENBERG, 1918; MANN, 1922; LESLEY, 1925.
	21		ROSENBERG, 1920.
	16		MARCHAL, 1920.
„ <i>biennis</i> L.	20	40	MANN, 1925.
	20		COLLINS & MANN, 1923; BABCOCK & LESLEY, 1926.
„ <i>Blavii</i> ASCH.	4		BABCOCK & LESLEY, 1926.
„ <i>chondrilloides</i> JACQ. . .	4		„ „ „ „
„ <i>ciliata</i> C. KOCH	20		„ „ „ „
„ <i>lyrata</i> FROEL.	6		„ „ „ „
„ <i>mollis</i> (JACQ.) ASCH. . .	6		„ „ „ „
„ <i>montana</i>		10	MANN, 1922.
	6	12 & 24	HOLLINGSHEAD, 1928a.
„ <i>montana</i> D'URV. . . .	6		BABCOCK & LESLEY, 1926.
„ <i>pygmaea</i> L.	6		„ „ „ „
„ <i>Sieberi</i> BOISS. ³⁾ . . .	6	12	MANN 1925.
Section <i>Youngia</i> CASS.			
<i>Crepis fuscicarpa</i> (THW.) BENTH.	8		BABCOCK & LESLEY, 1926
„ <i>japonica</i> BENTH . . .	8		TAHARA, 1910.
„ <i>japonica</i> (L.) BENTH. .	8	16	MANN, 1925.
	8		BABCOCK & LESLEY, 1926.

¹⁾ In 5 metaphases in root-tip cells, out of 257 examined, S. NAWASCHIN (1926) found association of homologous chromosomes.

²⁾ Of 4,000 plants examined, 16 had 3n, 5 had 4n, a few (18 in all) had 1, 2 or 3 extra chromosomes. One plant showed a cell in the root-tip with 128n (> 500) chromosomes. In diploid cells, one pair of chromosomes (D) had satellites. In 3 cases a new (n) chromosome unlike any of the 2n complex appeared.

³⁾ According to BABCOCK & LESLEY (1926), for *Crepis Sieberi* BOISS. read *C. montana* D'URVILLE.

COMPOSITAE (continued)		n	2n	
Section <i>Aetheorrhiza</i> CASS.				
<i>Crepis bulbosa</i>			18	MANN, 1922.
" <i>bulbosa</i> (L.) TAUSCH.	9	18		" 1925.
	9			BABCOCK & LESLEY, 1926.
Section <i>Omalocline</i>				
<i>Crepis aurea</i> (L.) REICHB.	5	10		MANN, 1925.
	5			BABCOCK & LESLEY, 1926.
" <i>Hookeriana</i> BALL.	4			" " " "
Section <i>Soyeria</i>				
<i>Crepis blattaroides</i>		8		ROSENBERG, 1920.
	4			MARCHAL, 1920.
" <i>blattaroides</i> VILL.	4	8		MANN, 1925.
	4			BABCOCK & LESLEY, 1926.
" <i>grandiflora</i>		8		MANN, 1922; NAWASCHIN, M., 1925a.
" <i>grandiflora</i> TAUSCH.	4	8		MANN, 1925.
" <i>grandiflora</i> TAUSCH. ¹⁾				
= <i>Crepis conyzaeifolia</i>				
(GOUAN) DALLA TORRE	4			BABCOCK & LESLEY, 1926.
" <i>paludosa</i> (L.) MNCH.	6			" " " "
" <i>sibirica</i>	4			MARCHAL, 1920.
" <i>sibirica</i> L.	5	10		MANN, 1925.
	5			BABCOCK & LESLEY 1926.
" <i>tingitana</i> SAIZ et BALL.	5			" " " "
Section (?) ²⁾				
<i>Crepis agrestis</i>	4			ROSENBERG, 1918.
		8		" 1920.
" <i>amplexicaule</i>		8		" "
" <i>barbata</i>	9			" 1918.
" <i>Burcnania</i>		8 & 16		HOLLINGHEAD, 1928a.
" <i>dichotoma</i>	3			ROSENBERG, 1918.
" <i>Hakelei</i>		16 & ca. 32		HOLLINGSHEAD, 1928a.
" <i>Jacquinii</i>		42		ROSENBERG, 1920.
" <i>multicaulis</i>	5			" 1918.
" <i>nicaensis</i>	4			" "
		8		" 1920.
" <i>polymorpha</i> var. <i>stricta</i>	3			" 1918.
" <i>Reuteriana</i>	3			" "
" <i>Reuteriana gigas</i>		12		" 1920.
" <i>rigida</i>	5			" 1918.
" <i>virens gigas</i>		12		" 1920.

¹⁾ According to BABCOCK & LESLEY (1926), for *C. grandiflora* TAUSCH read *C. conyzaeifolia* (GOUAN) DALLA TORRE.

²⁾ The following species were not arranged according to sections.

COMPOSITAE (continued)	n	2n	
<i>Crepis</i> Hybrids:			
<i>Crepis biennis</i> × <i>C. foetida</i> . .		25 & ca. 50 ¹⁾	LESLEY, M. M., 1925.
„ <i>biennis</i> × <i>C. setosa</i> . .		24 & 48	HOLLINGSHEAD, 1923a.
„ <i>biennis</i> × (<i>C. setosa</i> × <i>C. biennis</i> F ₂)	ca. 15	32	MANN, 1922.
„ <i>capillaris</i> × <i>C. aspera</i> F ₁	7 ²⁾	7 ³⁾	NAWASCHIN, M., 1927b, c.
	$\frac{2}{2}$		
„ <i>capillaris</i> × <i>C. aspera</i> F ₂ ⁴⁾	3+4 ₁ $\frac{2}{2}$	10 ⁵⁾	NAWASCHIN, M., 1927b.
„ <i>capillaris</i> × <i>C. aspera</i> F ₂		11 ⁶⁾	„ „ „
„ <i>capillaris</i> × <i>C. aspera</i> F ₂ (<i>capillaris</i> like) . .		10 ⁷⁾	„ „ 1927c.
„ <i>capillaris</i> × <i>C. aspera</i> F ₂ (<i>aspera</i> like) . . .		7, 11 ⁸⁾ , 12 ⁹⁾	„ „ „
„ <i>capillaris</i> × <i>C. aspera</i> F ₂ (<i>setosa</i> like)		11 ¹⁰⁾	„ „ „
„ <i>capillaris</i> × <i>C. parviflo-</i> <i>ra</i> ⁴⁾		7 ³⁾ , 11)	„ „ 1927b, c.
„ <i>capillaris</i> × <i>C. rubra</i> ⁴⁾ .		9	„ „ „
„ <i>capillaris</i> × <i>C. rubra</i> .		10 ¹²⁾	„ „ 1927c.
„ <i>capillaris</i> × <i>C. tectorum</i>		7 ³⁾ , 11)	BABCOCK & COLLINS, 1920a, b;
			NAWASCHIN, M., 1927c.
		10	„ „ 1927b.

¹⁾ In a few cells of the root of an F₁ of this hybrid, about twice 25 chromosomes were found, whereas most of the cells contained 25.

²⁾ Examination of 3 fertile plants by M. NAWASCHIN (1927c) showed variation in the way these 7 chromosomes were distributed to the 2 poles; either by random distribution, as of 7 univalents, or by division of all 7 chromosomes; or by an intermediate condition of these 2 types.

³⁾ These hybrids possessed the haploid sets of both parents (M. NAWASCHIN, 1927c).

⁴⁾ In these hybrids the chromosomes showed that they had undergone morphological changes (M. NAWASCHIN, 1927b).

⁵⁾ A haploid set of *C. aspera* and a diploid set of *C. capillaris* made up this number.

⁶⁾ A diploid set of *C. aspera* and a haploid set of *C. capillaris* made up this number.

⁷⁾ Two such plants had a diploid set of *C. capillaris* and a haploid set of *C. aspera* chromosomes. Division was regular with 3 gemini (the *C. capillaris* chromosomes) and 4 univalents (the *C. aspera* chromosomes) in diakinesis. These F₂ plants were characterized by a change in one of the „A” chromosomes.

⁸⁾ Four plants had a diploid set of *C. aspera* and a haploid set of *C. Capillaris* chromosomes.

⁹⁾ One plant had a diploid set of *C. aspera* and a haploid set of *C. capillaris* + 1 extra chromosome. This plant was abnormal and weak.

¹⁰⁾ These plants contained the haploid chromosome sets of *C. capillaris*, *C. aspera* and *C. setosa*.

¹¹⁾ In 3 hybrids M. NAWASCHIN (1927c) states that there was a change from the chromosome complex of the 2 parents, as seen in the loss of the trivalent of the „D” chromosome and in the change in the arm of the „A” chromosome.

¹²⁾ This hybrid possessed a diploid set of *C. capillaris* and a haploid set of *C. rubra*.

COMPOSITAE (continued)	n	2n	
<i>Crepis</i> (continued)			
<i>Crepis capillaris</i> × <i>C. tectorum</i>			
F ₂ ¹⁾		11 ²⁾	NAWASCHIN, M., 1927b, c.
" <i>foetida</i> × <i>C. rubra</i> . . .		9 ³⁾	" " 1927c.
" <i>setosa</i> × (<i>C. setosa</i> HALL			
× <i>C. capillaris</i> (L.)			
WALLR. F ₁		7, 8, 10	MANN, 1922.
" <i>setosa</i> × <i>C. biennis</i> F ₂ . .		25	" "
" <i>setosa</i> × (<i>C. setosa</i> × <i>C.</i>			
<i>biennis</i> F ₂)		17, 18	MANN, 1922.
" <i>tectorum</i> L. ♀ × <i>C. al-</i>			
<i>pina</i> ♂		10 ⁴⁾	NAWASCHIN, M., 1927a, d, e.
<i>Hieracium alpinum</i>	$\frac{27_1}{2}$		ROSENBERG, 1926.
		27	" 1927a.
" <i>asperulum</i>		27	" "
" <i>auricula</i>	7-9		" 1907b.
	9	18	" 1917.
" <i>auricula</i> (LYON) . . .	$9 + \frac{18}{2}$		" "
" <i>aurantiacum</i>	ca. 18	ca. 36	" "
" <i>balcanum</i>		36	" 1927a.
" <i>bifidum</i>		18	" "
" <i>boreale</i>	$.9-10 + \frac{11_1-27_1}{2}$	27	" "
" <i>boreale forma</i>	$10 + \frac{18_1}{2}$	36	" "
" <i>Bornmulleri</i>		27	" "
" <i>excellens</i>	18	42	" 1917.
" <i>flag-lare</i>	21		" 1907a.
" <i>hirsutum</i>		36	" 1927a.
" <i>intybaceum</i>	$\frac{27_1}{2}$		" "
" <i>lacerum</i>		27	" 1917, 1927a.

¹⁾ In these hybrids the chromosomes showed that they had undergone morphological changes (M. NAWASCHIN, 1927b).

²⁾ One plant was obtained which showed a diploid set of *C. tectorum* and a haploid set of *C. capillaris*. The "D" chromosomes in this F₂ plant also lacked the satellites but had "a small head" instead (M. NAWASCHIN, 1927c).

³⁾ In 3 hybrids M. NAWASCHIN (1927c) states that there was a change from the chromosome complex of the 2 parents, as seen in the loss of the trivalent of the "D" chromosome and in the change in the arm of the "A" chromosome.

⁴⁾ Cytological investigation of one alpina-like plant of the hybrid progeny showed 10 chromosomes quite like *C. alpina*. NAWASCHIN considered this a case of merogony (nucleus contributed by ♂ parent and protoplasm by ♀ parent).

COMPOSITAE (continued)	n	2n	
<i>Hieracium</i> (continued)			
<i>Hieracium laevigatum</i>		27	ROSENBERG, 1917.
	$\frac{17_1}{2}$		" 1927a.
" <i>Pilosella</i>	18	36	" 1917.
" <i>pseudoillyricum</i>		27	" "
" <i>pseudoillyricum</i>	$\frac{27_1}{2}$	27	" 1927a.
" <i>pulmonarioides</i>	$\frac{27_1}{2}$		" 1926.
		36	" 1927a.
" <i>sabaudum</i>		27	" "
" <i>silvestre</i>		27	" 1917.
" <i>speciosum</i>		27	" 1927a.
" <i>transsylvanicum</i>		18	" "
" <i>tridentatum</i>		27	" "
" <i>umbellatum</i>	9	18	JUEL, 1905.
		18	ROSENBERG, 1927a.
		27	" "
	$\frac{27 \& 54^1}{2}$		" 1927b.
" <i>umbellatum</i> var. <i>li-</i>			
nearifolium		27	" 1917.
" <i>venosum</i>	7		" 1907a, b.
" <i>virgaurea</i>		18	" 1927a.
" <i>virosum</i>		36	" "
" (diverse forms)		18	GRÉGOIRE, 1912.
<i>Leontodon autumnalis</i>	6		MARCHAL, 1920.
		12	NAWASCHIN, M., 1916.
" <i>autumnalis</i> L.	6		MEYER, K., 1925.
<i>Chondrilla juncea</i>	$\frac{14-16}{2}$		ROSENBERG, 1912.
<i>Taraxacum albidum</i> DAHLST. .		36-40	OSAWA, 1913a.
" <i>confertum</i>	8		ROSENBERG, 1909b.
" <i>erythrospermum</i>			
ANDRZ.		26-30	STORK, 1920.
" <i>officinale</i>		26	GRÉGOIRE, 1912.
	12-13	ca. 24 ²⁾	JUEL, 1905.
		22-(24)	HEITZ, 1926.
" <i>platycarpum</i> DAHLST. .	8		OSAWA, 1913a.
<i>Lactuca dentata</i> var <i>Thunbergii</i>	11-12		ISHIKAWA, 1921

¹⁾ A few restitution nuclei containing 54 chromosomes were found in this parthenogenetic species.

²⁾ Occasionally 22 and 26 chromosomes were counted.

COMPOSITAE (continued)	n	2n
<i>Lactuca</i> (continued)		
<i>Lactuca lanceolata</i>	5	ISHIKAWA, 1916, 1921.
„ <i>lanceolata</i> var. <i>platyphylla</i>	5	TAHARA & ISHIKAWA, 1911; TAKAMINE, 1923.
„ <i>lanceolata</i> var. <i>platyphylla</i> (FRANCH et SAV.) MAKINO	5	TAKAMINE, 1916.
„ <i>lanceolata platyphylla</i>	5	ISHIKAWA, 1921.
„ <i>muralis</i>	9	GATES & REES, 1921.
„ <i>sativa</i>	9	GATES, 1920.
„ <i>scariola</i>	9	GATES & REES, 1921.
„ <i>scariola</i> var. <i>sativa</i>	9	ISHIKAWA, 1921.
„ <i>Thunbergiana</i>	11-12	TAHARA & ISHIKAWA, 1911; ISHIKAWA, 1916.
<i>Picridium hispanicum</i>		16 BORGENSTAM, 1922.
<i>Sonchus oleraceus</i>	16 ¹⁾	ISHIKAWA, 1911b, 1916.
	8	MARCHAL, 1920.
<i>Tragopogon porrifolius</i>	6	WINGE, 1927b.
„ <i>pratensis</i>	6	BEER, 1912; WINGE, 1927b.
	7	ISHIKAWA, 1916.
„ <i>pratensis</i> × <i>porrifolius</i> F ₁	12	WINGE, 1927b.
„ <i>pratensis</i> × <i>porrifolius</i> F ₂	12, 24 ²⁾	SKOWROWN given by WINGE 1927b.

MONOCOTYLEDONEAE

PANDANALES

TYPHACEAE

<i>Typha angustifolia</i>	ca. 15 ³⁾	ROSCOE, 1927c.
„ <i>angustifolia</i> var. <i>Muc-leri</i> GRAEB.	30	„ „
„ <i>angustifolia</i> hybrid.	ca. 15 ⁴⁾	„ „
„ <i>latifolia</i>	15	„ „

HELIOBAE

POTAMOGETONACEAE

<i>Zostera marina</i> L.	ca. 13	ROSENBERG, 1901, 1904b.
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¹⁾ In previous list, GAISER (1926), the number was incorrectly given as 8 for ISHIKAWA (1916).

²⁾ This number was found in parts of two root-tips, which showed larger cells.

³⁾ The presence of bivalents and univalents made it impossible to determine the exact number of chromosomes. As many as 22 units were counted in diakinesis.

⁴⁾ Metaphases may be regular and show only bivalents or may include univalents as well as bivalents (ROSCOE, 1927c).

POTAMOGETONACEAE (continued) n		2n	
<i>Potamogeton foliosus</i> Raf.	7		WIEGAND, 1899.
<i>Ruppia maritima</i>		16	GRAVES, 1903.
" <i>rostellata</i> Koch.	3		MÜRBECK, 1902.
NAIADACEAE			
<i>Najas major</i>	6	12	GUIGNARD, 1899a, b.
	6	12 ¹⁾	TSCHERNOYAROW, 1914.
" <i>major</i> ALL.	6		GUIGNARD, 1898.
	6 ²⁾	12 ¹⁾	TSCHERNOYAROW, 1927.
			TAKAMINE, 1927.
" <i>marina</i> L. (= <i>N. major</i>)		14	MÜLLER, C., 1912.
	6	12, 14	WINGE, 1927a.
" <i>flexilis</i>	8-12		CAMPBELL, 1897.
APONOGETONACEAE			
<i>Aponogeton distachyus</i>	3	16	SERGUEEFF, 1907.
	ca. 16		SUSSENGUTH, 1920.
<i>Aponogeton fenestralis</i> Hook.f.	8		SERGUEEFF, 1907.
ALISMACEAE			
<i>Sagittaria sagittifolia</i>		16	LIEHR, 1916.
" <i>L. F. sinensis</i> Mak.		20	NAWA, 1923.
<i>Alisma plantago</i>		12	LIEHR, 1916.
BUTOMACEAE			
<i>Butomus umbellatus</i> L.	11-12		HOLMGREN, 1913.
" <i>umbellatus</i>		16	LIEHR, 1916.
		40 ³⁾	TERBY, 1922.
<i>Hydrocleis nymphaeoides</i>		12 ⁴⁾	SUSSENGUTH, 1920. 1921.
HYDROCHARITACEAE			
<i>Elodea canadensis</i>	ca. 12 ⁵⁾		WYLIE, 1904.
	24	43	SANTOS, 1924.
<i>Vallisneria gigantea</i> GRAEBN.	20	40	JØRGENSEN, 1927a.
" <i>spiralis</i> L.	10	20	" "
" <i>spiralis</i>	3-9 ⁶⁾	17-18	WINGE, 1923.
		20 ⁷⁾	(NEWTON) reported by BLACKBURN, (1926) 1929.
	10	20	WINGE, 1927a.

¹⁾ One pair of chromosomes possessed satellites.

²⁾ Seven chromosomes were sometimes found in the homeotypic metaphase and the extra small one was thought to have resulted from transverse division of a chromosome having a satellite.

³⁾ In previous list (GAISER, 1926) the number 40 was omitted from the diploid column column for TERBY, 1922.

⁴⁾ This number was determined in the embryo-sac-mother cell.

⁵⁾ Heterochromosomes were found: ♀ 2n = 46 + 2x; ♂ 2n = 46 + x + y; ♀n = 23 + x; ♂n = 23 + x or 23 + y.

⁶⁾ WINGE (1923) found heterochromosomes as follows: ♀ 2n = 16 + x + x; ♂ 2n = 16 + x; ♀n = 8 + x; ♂n = 8 + x or 3.

⁷⁾ According to NEWTON, the somatic chromosome number is 20 for both sexes.

HYDROCHARITACEAE (continued) n		2n	
<i>Hydrilla verticillata</i> PRESL. . .		24 ¹⁾	SINOTO & KIYOHARA, 1923.
TRIURIDALES			
TRIURIDACEAE			
<i>Sciaphila japonica</i>	24	43	(OGHA 1916) given by ISHIKAWA, 1916.
„ spec. (approaching S.			
<i>Andajensis</i> BECC. . . ca. 12			WIRZ, 1910.
GLUMIFLORAE			
GRAMINEAE			
<i>Zea Mays</i> ²⁾	$\frac{20_1}{2}$		
	$1 + \frac{18_1}{2}$		
	$2 + \frac{16_1}{2}$ etc.		
	rarely 10		BEADLE & MCCLINTOCK, 1928.
<i>Zea Mays</i> L.	10		LONGLEY, 1924 ³⁾ , 1927b ⁴⁾ ; RANDOLPH & MCCLINTOCK, 1926.
	10 ₃	30	RANDOLPH & MCCLINTOCK, 1926.
<i>Zea Mays</i> L. (sugary varieties) ¹⁾	10		KUWADA, 1925.
	11-12 ⁵⁾	20-22	„ „
	$\frac{21, 11}{2}$ ⁶⁾		LONGLEY, 1925.
<i>Alpha</i>	10	20	RANDOLPH, 1928.
<i>Bantam Evergreen</i>	10	20	„ „
<i>Black Mexican</i> ⁴⁾	12	20-24	KUWADA, 1915, 1919.
	8-11	20-23	FISK, 1925.
	9-11 ⁷⁾	22 ⁸⁾	FISK, 1927.

¹⁾ At diakinesis, metaphase and anaphase of the first meiotic division in microsporocytes, one geminus is seen to consist of a longer and a shorter chromosome.

²⁾ This collection of maize plants was considered to carry factors for male sterility.

³⁾ LONGLEY (1924) studied 4 varieties of maize, including Chinese Waxy and Tepic.

⁴⁾ LONGLEY (1927b) states that in the following varieties (Golden Bantam, Stowell's Evergreen, and more frequently in Country Gentleman, Black Mexican, White Sheath, and White Dent Crosby) plants occurred with a somatic number of more than 20 chromosomes.

⁵⁾ KUWADA (1911, 1915, 1919) thought there was a tendency for sugar corns to have a higher chromosome number than starch corns ($n = 10$). In 1925 KUWADA studied sugar corns from 5 sources and only in material from one source (i.e., the Agr. Coll., Tokyo Imp. Univ.) did he find irregular numbers.

⁶⁾ In 2 strains of sweet corn, LONGLEY (1925) found 21 and 11 chromosomes.

⁷⁾ In 3 plants there were 11 to 13 bivalents, but more frequently there were fewer (9-11) present, and some additional (1-6) round bodies.

⁸⁾ A variation of 20-23 was found in the somatic counts, but 22 was the number in the majority of cells.

GRAMINEAE (continued)	n	2n	
<i>Zea</i> (continued)			
	ca. 12	24	REEVES, 1925.
	11+2 ₁ ,		
	12+1 ₁ ,		
	12+3 ₁ , 13,	20, 23,	RANDOLPH, 1928.
	13+1 ₁ , 14	28 ¹⁾	
<i>Country Gentleman</i> ¹⁾ . . .	10		KIESSELBACH & PETERSEN, 1925.
<i>Crosby</i>	10	20	FISK, 1925.
	10		„ 1927.
<i>Early Eight Sugar Corn</i> . .	9-12		KUWADA, 1911.
<i>Early White Evergreen</i> . . .	10	20	RANDOLPH, 1928.
<i>Evergreen</i>	10 ²⁾	20	FISK, 1925, 1927.
<i>Golden Bantam</i> ¹⁾	10		REEVES, 1925.
	10 ²⁾	20 ³⁾	FISK, 1925, 1927.
	10, 10+	20-22	RANDOLPH, 1928.
<i>Hickox Sweet</i>	10 ⁴⁾		FISK, 1927.
<i>Red Sugar Corn</i>	9-12		KUWADA, 1911.
<i>Stowell's Evergreen</i> ⁵⁾ . . .	10		REEVES, 1925.
<i>Sugar Corn</i>	9-11, 12, 13-14		KUWADA, 1915, 1919.
<i>Zea Mays</i> L. (Flint Varieties):			
<i>Argentine</i>	10		REEVES, 1925.
<i>Gehu</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>Hall's Golden Nugget</i> . . .	10, 10+1 ₁	21, 21	RANDOLPH, 1928.
<i>King Philip's</i>	10		KIESSELBACH & PETERSEN, 1925; REEVES, 1925.
<i>Lancaster</i>	10		REEVES, 1925.
<i>Luce's Favorite</i>	10	20	RANDOLPH, 1928.
<i>New York State Flint</i> . . .	10, 11+1 ₁ , 10+3 ₁	20-32 ⁶⁾	„ „
<i>Red Flint</i>	10	20	FISK, 1925.
	10		„ 1927.
<i>White Australian</i>	10		KIESSELBACH & PETERSEN, 1925.

¹⁾ Eighteen out of 20 plants showed extra chromosomes (20-28) with a majority having 23.

²⁾ In diakinesis, 9 or 10, and 10 or 11 chromosomes could be counted and only once, in Golden Bantam, 9 and 11 were counted in homoecotypic metaphase.

³⁾ In somatic counts there were variations of 19 or 20 and 20 or 21.

⁴⁾ There were variations of 1 chromosome in the counts, as 9 or 10, and 10 or 11.

⁵⁾ See pag. 340 foot-note 4.

⁶⁾ A high percentage (8 of 10 plants) showed extra chromosomes, 20-23.

GRAMINEAE (continued)	n	2n	
<i>Zea</i> (continued)			
<i>White Flint</i>	10 ¹⁾		KUWADA, 1911.
<i>Yellow Flint</i>	10	20 ²⁾	FISK, 1925, 1927.
<i>Zea Mays</i> L. (Dent Varieties):			
<i>Bloody Butcher</i>	10	20	RANDOLPH, 1928.
<i>Calico</i> (North Platte)	1;		KIESSELBACH & PETERSEN, 1925.
<i>Cornell II</i>	10	20	RANDOLPH, 1928.
<i>Douthit Prolific</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>Earliest of Early Dents</i>	10	20	RANDOLPH, 1928.
<i>Esperanza</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>Eureka</i>	10	20	RANDOLPH, 1928.
<i>Golden Glow Dent</i>	10 ¹⁾	20 ²⁾	FISK, 1925, 1927.
<i>Hogue Yellow Dent</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>Inbred Strains</i> (Hogue Nos.) ³⁾	10		KIESSELBACH & PETERSEN, 1925.
<i>Leaming</i>	10	20	RANDOLPH, 1928.
<i>Mexican June</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>Minnesota 13</i>	10	20	RANDOLPH, 1928.
<i>Nevada White Prize</i> Nos. 659 & 676	10		KIESSELBACH & PETERSEN, 1925.
<i>Pride of Michigan</i>	10	20	RANDOLPH, 1928.
<i>Pride of the North</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>Pride of Saline</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>Reid Yellow Dent</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>Substation White</i>	10		KIESSELBACH & PETERSEN, 1925.
(One commercial race)	10		REEVES, 1925.
<i>Zea Mays</i> (varieties valled „Starch”)	12,13 ⁴⁾		LONGLEY, 1925.
<i>Black Starch</i>	7-10		KUWADA, 1915, 1919.

¹⁾ There were variations of 1 chromosome in the counts, as 9 or 10 and 10 or 11.

²⁾ In somatic counts there were variations of 19 or 20 and 20 or 21.

³⁾ HOGUE Nos. 8, 724, 726, 731, 742, and 745.

⁴⁾ In 25 strains of starchy maize, LONGLEY (1925) found 12, 13 chromosomes.

GRAMINEAE (continued)	n	2n	
<i>Zea</i> (continued)			
<i>Red Starch</i>	9-10		KUWADA, 1911
<i>Yellow Starch</i>	10		" "
<i>Starchy heterozygous</i> for dwarf		20 ¹⁾	FISK, 1927.
<i>Zea Mays</i> (Pop Corns)			
<i>Amber Rice Pop Corn</i>	10-11		KUWADA, 1915, 1919.
<i>Black Beauty Pop</i>	10	20	RANDOLPH, 1923.
<i>Red Pericarp Pop</i>	10	20	" "
<i>Tom Thumb</i>	10		REEVES, 1925.
<i>White Pearl Pop</i>	10		KIESSELBACH & PETERSEN, 1925.
<i>White Rice Pop</i>	10	20	RANDOLPH, 1923.
<i>Pop Corn</i>	10	20 ¹⁾	FISK, 1925, 1297.
<i>Zea Mays</i> L. (24 genetical cultures)		20-26 ²⁾	RANDOLPH, 1923.
" <i>Mays</i> L. „anther-eared semi-dwarf”	10	20	FISK, 1925.
	10 ³⁾		" 1927.
" <i>Mays Chinese Corn</i>	10		KUWADA, 1915, 1919; KIESSELBACH & PETERSEN, 1925
" <i>Mays</i> L. Floury Corn. . . .	10	20	FISK, 1925.
		20 ¹⁾	" 1927.
" <i>Mays Golden Broach field corn</i>	10		KUWADA, 1911.
" <i>Mays</i> L. var. <i>indentata</i> . .		20 ⁴⁾	KOSHUCHOW, 1927, 1923.
" <i>Mays</i> L. var. <i>tunicata</i> . .	10		KUWADA, 1915, 1919.
" <i>ramosa</i>	10	20	FISK, 1925.
		20 ⁵⁾	" 1927.
	10		KIESSELBACH & PETERSEN, 1925.
" <i>Mays</i> (Amber Rice Pop Corn × Black Mexican) . .	10		KUWADA, 1915, 1919.
" <i>Mays</i> (Amber Rice Pop Corn × Sugar Corn) . .	9-11, 12, 13-14		KUWADA, 1915, 1919.
" <i>Mays</i> (Golden Glow Dent × Crosby Sweet)	10		FISK, 1925, 1927.
" <i>Mays</i> (Golden Glow Dent × Black Mexican)	16 ⁶⁾		" " "

¹⁾ In somatic counts there were variations of 19 or 20 and 20 or 21 chromosomes.

²⁾ 68 % of the plants of 24 genetical cultures had > 20 chromosomes.

³⁾ There were variations of 1 chromosome in the counts, as 9 or 10, and 10 or 11.

⁴⁾ Tetraploid and octoploid numbers were obtained as a result of treatment of seedlings with higher and lower than optimal temperatures for germination.

⁵⁾ In somatic counts there were variations of 19 or 20 and 20 or 21 chromosomes.

⁶⁾ There were variations of 9, 10 10 + 1, 11 on the heterotypic spindle (Fisk 1927)

GRAMINEAE (continued)		n	2n	
<i>Zea</i> (continued)				
<i>Zea Mays</i> (Evergreen Sweet × Golden Bantam F ₂) . . .	10			FISK, 1925, 1927.
<i>Coix agrestis</i> LOWR. ¹⁾ . . .		20		KUWADA, 1915, 1919.
„ <i>lachryma jobi</i> L. ¹⁾ . . .	10			LONGLEY, 1924b.
		20		TAYLOR, 1925c.
<i>Tripsacum lanceolatum</i> RUPR. . .	ca. 35			LONGLEY, 1924b.
„ <i>laxum</i> NASH . . .	ca. 35			„ „
„ <i>pilosum</i> SCRIBN. & MERR.	ca. 35			„ „
„ <i>Barberi</i> JESW. . .	46			JESWIET, 1928.
„ <i>officinarum</i> . . .		28		FRANCK, 1911.
		68		KUWADA, 1915, 1919.
	40			BREMER, 1928a, c ²⁾ , d.
„ <i>officinarum</i> var. <i>Ardjoeno</i>	40			„ 1923, 1924, 1928c.
„ <i>officinarum</i> var. <i>Batjan</i>	40			„ „ „ „
„ <i>officinarum</i> <i>Banjarmasin hitam</i> . .	40			„ „ „
„ <i>officinarum</i> var. <i>Black Cheribon</i> . .	40	ca. 80		„ „ „
„ <i>officinarum</i> var. <i>chunnee</i>	46-50	ca. 91		„ „
<i>Saccharum officinarum</i> var. <i>Fidji</i>	40	ca. 80		BREMER, 1923, 1924.
„ <i>officinarum</i> var. <i>Green German New Guinea</i>	40			„ „ „
„ <i>officinarum</i> var. <i>Teboe Hitam Rokan</i> . .	ca. 30			„ „
„ <i>officinarum</i> var. <i>Hitam Rokan</i> . .	33-35	55		„ 1925.
„ <i>officinarum</i> var. <i>Lahaina</i>		80		„ 1924
	40			„ 1928c.
„ <i>officinarum</i> „ <i>Loethers</i> ” ³⁾	ca. 50	98-99		„ 1923, 1924.
	99			„ 1928c, d.
	$\frac{2}{2}$			

¹⁾ *Coix agrestis* LOWR. and *C. lachryma jobi* L. may be the same species.

²⁾ Many varieties were examined by BREMER (1928c).

³⁾ BREMER (1928c) speaks of Loethers cane as *Saccharum* hybrid.

JESWIET (1928) speaks of Loethers cane as probably related to *Saccharum sinense* ROXB.

GRAMINEAE (continued)	n	2n	
<i>Saccharum</i> (continued)	49		JESWIET, 1928.
<i>Saccharum officinarum</i> var.			
<i>Red Egyptian cane</i>		ca. 80	BREMER, 1923.
<i>officinarum</i> var.			
<i>Ruckee</i>	46-48		" "
<i>officinarum</i> var.			
<i>Tanangge</i>	30		" 1925.
<i>officinarum</i> var.			
<i>Teboe Sampang A</i>	ca. 40		" 1923.
<i>officinarum</i> CK 28	40		" 1928c.
<i>spontaneum</i> . . .		ca. 68	KUWADA, 1915, 1919.
<i>spontaneum</i> (glagah			
of Java)	56		BREMER, 1928a, b, c, d.
<i>spontaneum</i> (Glagah			
Tabongo of Cele-			
bes) ¹⁾	40		" 1925, 1928b, c, d.
<i>spontaneum</i> (Glagah			
alas Djatiroto) . .	56		" 1923.
<i>spontaneum</i> (Glagah			
alas Kepandjin .	56		" "
<i>spontaneum</i> (Glagah			
Kletak III) . . .	56		" "
<i>spontaneum</i> (Glagah			
alas Soemberpoetih)	56		" 1928c.
<i>spontaneum</i> (Glagah			
alas Troeno) . . .	56		" "
„Kassover” (probably <i>S. of-</i>			
ficinarum			
× <i>S. spontaneum</i>)	68		" 1923, 1928c, d.
„Naz Reunion” (<i>Saccharum</i>			
hybrid(?))	109-110		" 1928c.
	$\frac{2}{2}$		
<i>Saccharum officinarum</i> × <i>S.</i>			
<i>spontaneum</i> (Gla-			
gah Tabongo) . .	120		" 1928d.
	$\frac{2}{2}$		
<i>officinarum</i> Ardjoe-			
no) × <i>S. sponta-</i>			
neum (Glagah Ta-			
bongo)	120		" 1928c.
	$\frac{2}{2}$		

¹⁾ In BREMER (1925) and (1928b) *Glagah Tabongo* was given as a variety of *S. officinarum* but in BREMER (1928c and d) *Glagah Tabongo* from Celebes is given under *spontaneum*.

GRAMINEAE (continued)	n	2n	
<i>Saccharum</i> (continued)			
<i>Saccharum officinarum</i> × <i>S.</i> <i>spontaneum</i> F ₁ . .	$\frac{136}{2}$		BREMER, 1923a.
	$62-66 + \frac{12_1-14_1}{2}$		„ 1923c.
„ <i>officinarum</i> × <i>S.</i> <i>spontaneum</i> (Celebes)	$\frac{136}{2}$		„ 1923a.
„ <i>officinarum</i> × „Kassoer”	ca. $\frac{148}{2}$		„ 1923d.
„ <i>officinarum</i> (Bandjarmasin hitam × „Loethers”) 100 POJ		89	„ 1924.
„ <i>officinarum</i> × „Loethers 100 POJ	$\frac{89}{2}$		„ 1923c, d.
„ <i>officinarum</i> (Djamprox) × „Loethers” = <i>Koesoma</i> . . .		93	„ 1924.
„ <i>officinarum</i> × „Loethers” = <i>Koesoma</i>	$\frac{93}{2}$		„ 1923c.
„ „Loethers” × <i>S.</i> <i>spontaneum</i> . . .	ca. $\frac{127}{2}$		„ „
„ 100 POJ × <i>S. spontaneum</i>	70(?) ca. $\frac{127}{2}$		„ 1923d. „ 1923c.
„ <i>officinarum</i> × <i>S.</i> <i>spontaneum</i> F ₂ . .	ca. $\frac{136}{2}$		„ „
„ <i>officinarum</i> × (<i>S. officinarum</i> × <i>S. spontaneum</i>) . . .	$\frac{148}{2}$		„ 1923a, c.
„ <i>spontaneum</i> × (<i>S. officinarum</i> × <i>S. spontaneum</i>) . . .	62		„ 1923c.
„ <i>officinarum</i> × [<i>S.</i>			

GRAMINEAE (continued)	n	2n
<i>Saccharum</i> (continued)		
<i>officinarum</i> × <i>S. officinarum</i> × <i>S. spontaneum</i>]. . .	57	BREMER, 1928c
" <i>spontaneum</i> × { <i>S. officinarum</i> × [<i>S. officinarum</i> × (<i>S. officinarum</i> × <i>S. spontaneum</i>)]} . .	$> \frac{160}{2}$	" "
" <i>officinarum</i> × <i>S. spontaneum</i>) × { <i>S. officinarum</i> × [<i>S. officinarum</i> × (<i>S. officinarum</i> × <i>S. spontaneum</i>)]} . .	57	" "
{(" <i>officinarum</i> × <i>S. spontaneum</i>) × <i>S. officinarum</i> } × <i>S. officinarum</i> . . .	$\frac{106-120}{2}$	" 1928a.
{ " <i>officinarum</i> × <i>S. spontaneum</i> (n = 57) } × <i>S. spontaneum</i>	ca. $\frac{170}{2}$	" "
<i>S. officinarum</i> × <i>S. spontaneum</i> crosses:		
(<i>Gestreept Preanger</i> × <i>Glagah alas Troeno</i>) 106	$\frac{136}{2}$	" "
(<i>Gestreept Preanger</i> × <i>Glagah alas Troeno</i>) 107 ?	$\frac{136}{2}$	" "
(<i>Zwart Borneo</i> × <i>Glagah alas Soemberpoetih</i>) I 1052, I 1056	$\frac{136}{2}$	" "
(<i>Soerat Banteng</i> × <i>Glagah alas Soemberpoetih</i> , I 1064, I 1072	$\frac{136}{2}$	" "
(<i>Lahaina</i> × <i>Glagah alas</i>		

GRAMINEAE (continued)	n	2n
<i>Saccharum officinarum</i> × S		
<i>spontananeum</i> F ₂ crosses (continued)		
<i>Soemberpoetih</i> I 1078,		
1080, 1086	136	BREMER, 1928c.
	<u>2</u>	
(2064 POJ (Zw. Cheribon ×		
<i>Fidji</i>) × <i>Glagah alas</i>		
<i>Troeno</i>) 2775 POJ	136	„ „
	<u>2</u>	
<i>Teboe Monjet</i> (<i>S. officinarum</i>		
× <i>Glagah</i>)	143-144	„ „
	<u>2</u>	
<i>Saccharum officinarum</i> × S.		
<i>spontananeum</i> F ₂ :		
2027 POJ Kassoer	129-130	„ „
	<u>2</u>	
2028 POJ Kassoer	±136	„ „
	<u>2</u>	
238 K ₂ I 1086 = <i>Lahaina</i> ×		
<i>Glagah alas Soemberpoetih</i>	136-137	„ „
	<u>2</u>	
238 Kg, I 1086 = <i>Lahaina</i>		
× <i>Glagah alas Soember-</i>		
<i>poetih</i> . ×	134	„ „
	<u>2</u>	
K 1539, I 1061 = <i>Zwart</i>		
<i>Borneo</i> × <i>Glagah alas</i>		
<i>Soemberpoetih</i>	136	
	<u>2</u>	
K 1541, I 1061 = <i>Zwart Bor-</i>		
<i>neo</i> × <i>Glagah alas Soem-</i>		
<i>berpoetih</i>	134-136	„ „
	<u>2</u>	
K 1545, I 1063 = <i>Soerat Ban-</i>		
<i>ting</i> × <i>Glagah alas Soem-</i>		
<i>berpoetih</i>	136	„ „
	<u>2</u>	
2 K 16, I 1063 = <i>Soerat Ban-</i>		
<i>ting</i> × <i>Glagah alas Soem-</i>		
<i>berpoetih</i>	136	„ „
	<u>2</u>	
I 1087, G 107 = <i>Gestreept</i>		
<i>Preanger</i> × <i>Glagah alas</i>		
<i>Troeno</i>	132-133	„ „
	<u>2</u>	

GRAMINEAE (continued)	n	2n
<i>Saccharum officinarum</i> × <i>S.</i> <i>spontaneum</i> F ₂ (continued)		
I 1090, G 107 = <i>Gestreept</i> <i>Preanger</i> × <i>Glagah alas</i>		
Troeno	125-126-128	BREMER, 1923c.
	<u>2</u>	
<i>Suikerriet</i> × <i>Glagah</i> :		
#581 (<i>Bandjarmasin hitam</i> × <i>Glagah Kependjen</i>) . .	<u>136</u>	" "
	2	
#581 × <i>Glagah Soekapoera</i> 2	<u>123-124</u>	" "
	2	
K 1525 × <i>Glagah Soekapoera</i> 2	<u>123-124</u>	" "
	2	
11 K9 × <i>Glagah Soekapoera</i> 2	<u>123-124</u>	" "
	2	
11 K23 × <i>Glagah Soekapoera</i> 2	<u>123-124</u>	" "
	2	
11 K 45 × <i>Glagah Soekapoera</i> 2	<u>123-124</u>	" "
	2	
<i>Suikerriet</i> × <i>Kassoer</i> :		
1807 POJ. (<i>Gestreept Prean-</i> <i>ger</i> × <i>Kassoer</i>)	<u>147-148</u>	" "
	2	
2222 POJ. (<i>Zwart Cheribon</i> × <i>Kassoer</i>)	<u>146</u>	" "
	2	
<i>Tjepiring</i> 136 <i>Zwart Cheri-</i> <i>bon</i> × <i>Kassoer</i>	<u>150</u>	" "
	2	
2725 POJ (GK 28 × 2364 POJ.)	<u>106-107</u>	" "
	2	
2878 POJ (GK 28 × 2364 POJ.)	<u>119-120</u>	" 1928c, d.
	2	
2883 POJ. (GK 28 × 2364 POJ.)	<u>114-115</u>	" 1928c.
	2	
2727 POJ. (2364 POJ × <i>S.</i> <i>officinarum</i> (<i>Batjan</i>)) . .	<u>133-134</u>	" "
	2	

GRAMINEAE (continued)	n	2n	
<i>Suiherriet</i> × <i>Kassoer</i> (continued)			
O 1744 (<i>Aräjoeno</i> × <i>Glagah</i>)			
<i>Tabongo</i>	$\frac{120}{2}$		BREMER, 1928b.
1001 P 1 (<i>Loethers</i> × <i>Glagah</i>)			
<i>alas Soemberpoetih</i>)	$\frac{147-148}{2}$	" "	
O 1743 (<i>Loethers</i> × <i>Glagah</i>)			
<i>Tabongo</i>	$\frac{139}{2}$	" "	
15 N1 (<i>Naz Reunion</i> × <i>Glagah</i>)			
<i>Tabongo</i>)	$\frac{151-152}{2}$	" "	
G 92 (100 POJ. × <i>Glagah</i>)			
<i>alas Troeno</i>)	$\frac{139}{2}$	" "	
G 95 (100 POJ × <i>Glagah</i> <i>alas</i>)			
<i>Troeno</i>)	$\frac{143-144}{2}$	" "	
M 2601 (100 POJ. × <i>Glagah</i>)			
<i>alas Kepandjen</i>)	$\frac{143-144}{2}$	" "	
15 N5 (100 POJ. × <i>Glagah</i>)			
<i>alas Kepandjen</i>)	$\frac{143-144}{2}$	" "	
G 104 (<i>Gestreept Preanger</i> × <i>Glagah</i> <i>alas Troeno</i>)	$\frac{136}{2}$		BREMER, 1928c.
2358 POJ (<i>Lahaina</i> × G104)	$\frac{145}{2}$	" "	
P 1206 (<i>Zwart Cheribon</i> × I 1086)	$\frac{152}{2}$	" "	
2364 POJ (100 POJ. × <i>Kassoer</i>)	$\frac{148}{2}$	"	1928c, d.
2323 POJ (100 POJ. × <i>Kassoer</i>)	$\frac{150-152}{2}$	"	1928c.
2354 POJ (100 POJ. × <i>Kassoer</i>)	$\frac{157}{2}$	" "	
2765 POJ (<i>Kassoer</i> × EK ₂) .	$\frac{\text{ca. } 139}{2}$	" "	

GRAMINEAE (continued)	n	2n	
<i>Suikerriet</i> × <i>Kassoer</i> (continued)			BREMER, 1928c.
2767 POJ (<i>Kassoer</i> × EK ₂)	133-134		
	$\frac{2}{2}$		
2784 POJ (<i>Kassoer</i> × EK ₂)	138		" "
	$\frac{2}{2}$		
2786 POJ. (<i>Kassoer</i> × <i>Ba-tjan</i>)	144		" "
	$\frac{2}{2}$		
2789 POJ. (2029 POJ. × 247 B)	126-128		" "
	$\frac{2}{2}$		
P 1238 (I 1081 × DIJ2) . .	129		" "
	$\frac{2}{2}$		
P 1233 (I 1081 × <i>Bandjermasin hitam</i>)	124-125		" "
	$\frac{2}{2}$		
557 M5 (#581 × <i>Loethers</i>) .	118		" "
	$\frac{2}{2}$		
1007 P ₂ (I 1081 × <i>Loethers</i>)	116-117		" "
	$\frac{2}{2}$		
2714 POJ (2364 POJ × EK 28)	114-116 ¹⁾		" "
	$\frac{2}{2}$		
2722 POJ (2364 POJ × EK 28)	108		" "
	$\frac{2}{2}$		
2875 POJ. (2364 POJ × EK 28)	110		" "
	$\frac{2}{2}$		
2836 POJ (2364 POJ × <i>Ar-djoeno</i>)	112		" "
	$\frac{2}{2}$		
2934 POJ (2364 POJ × Sw 111)	ca. 116		" "
	$\frac{2}{2}$		
2738 POJ (1808 POJ × <i>Fidji</i> 1808) ²⁾	130-131		" "
	$\frac{2}{2}$		
2782 POJ (2194 POJ ³⁾ × <i>Sampang A</i>)	ca. 133		" "
	$\frac{2}{2}$		

¹⁾ This was very abnormal in division.

²⁾ 1808 Poj is *Gestreept Preanger* × *Kassoer*.

³⁾ 2194 Poj is *Zwart Cheribon* × *Kassoer*.

GRAMINEAE (continued)	n	2n	
<i>Suikerriet</i> × <i>Kassoer</i> (continued)			BREMER, 1928c.
M 602 (2194 POJ. × SW ₈) .	ca. $\frac{130}{2}$		
M 664 (2194 POJ × EK ₂) .	ca. $\frac{128}{2}$		" "
10 P ₂ (722 POJ × <i>Glagah</i> <i>alas Troeno</i>)	$\frac{162}{2}$		" "
1228 P ₃ (2875 POJ × <i>Glagah</i> <i>alas Kloet</i>)	$\frac{87-88}{2}$		" "
113 P ₁ (Zwart Borneo × 11 K ¹⁾)	$\frac{140}{2}$		" "
2722 POJ × 11 K.	$\frac{113-114}{2}$		" "
2722 POJ	$\frac{108}{2}$		" "
1760 I (2722 POJ × 11 K) .	$\frac{166}{2}$		" "
01738 (2722 POJ × 11 K) .	$\frac{118}{2}$		" "
01728 (2722 POJ × H 585) .	$\frac{65-70}{2}$		" "
0729 (277 POJ × H 585) .	$\frac{128}{2}$		" "
01718 (2836 POJ × I 1080)	$\frac{123-124}{2}$		" "
<i>Glagah Tabongo</i> × <i>Glagah Ta-</i> <i>bongo</i> ²⁾	48-56		" "
<i>Avena abyssinica</i>	14	28	STANTON & DORSEY, 1927.
" <i>barbata</i>	7		KIHARA, 1924; GOULDEN, 1926.
	14		KIHARA, 1919b, 1924; DORSEY, E., 1925.
	14	28	HUSKINS, 1926, 1927b ³⁾ .
		32	NIKOLAWEA, 1922b.
" <i>brevis</i>		14	NIKOLAWEA, 1922b, 1923.
	7		GOULDEN, 1926.
	7	14	HUSKINS, 1926, 1927b.
" <i>brevis</i> ROTH.	7		AASE & POWERS, 1926.
" <i>byzantina</i>	21		KIHARA, 1919b, 1924.

¹⁾ 11 K is H 581 × *Glagah Soekapoera* 2.

²⁾ In 1923 from these crosses several giant plants with 48—56 chromosomes were produced. In 1924 the cross produced only 2 giants and one had 42 chromosomes.

³⁾ The form studied by HUSKINS (1927b) was *Avena barbata*, Cornell strain.

GRAMINEAE (continued)	n	2n	
<i>Avena</i> (continued)			
	21	42	HUSKINS, 1927b.
		44	NIKOLAWEA, 1922b, 1923.
<i>Avena clauda</i>		14	NIKOLAWEA, 1922b, 1923.
" <i>fatua</i>	21		KIHARA, 1919b, 1924; HUSKINS 1925; DORSEY, E., 1925; STOLZE 1925.
	21	42	HUSKINS, 1927b; GOULDEN, 1926.
		48	NIKOLAWEA, 1922b, 1923.
" <i>fatua</i> A.	21		HUSKINS, 1926.
" <i>ludowiciana</i>		44	NIKOLAWEA, 1922b, 1923.
	21	42	HUSKINS, 1926, 1927b.
" <i>nuda</i>	21	42	GOULDEN, 1926; HUSKINS, 1926, 1927b.
" <i>nuda briaristata</i>		14	NIKOLAWEA, 1922b, 1923.
" <i>nuda inermis</i>		48	" " "
" <i>pilosa</i>		14	" " "
" <i>sativa</i>	21		KIHARA, 1919b, 1924; HUSKINS 1925; WINGE, 1925.
	21	42	GOULDEN, 1926.
		48	NIKOLAWEA, 1922b.
		42-48	" 1923.
" <i>sativa</i> var. <i>Banner</i> . . .	21		HUSKINS, 1926.
	21	42	" 1927b.
" <i>sativa</i> var. <i>Gigantica</i> ¹⁾ .	21	42	" "
" <i>sativa</i> var. <i>Lincoln</i> . . .	21	42	" "
" <i>sativa</i> L. var. <i>Markton</i> .	21		AASE & POWERS, 1926.
" <i>sativa</i> var. <i>Orientalis</i> . .	21	42	HUSKINS, 1927b.
" <i>sativa</i> var. <i>Victory</i> . . .	21		" 1926.
	21	42	" 1927b.
" <i>sativa patula</i> var. <i>Aurea</i> KCKE.	21	42	STOLZE, 1925.
" <i>sativa</i> (dwarf)	21 ²⁾		GOULDEN, 1926.
" <i>sativa</i> (fatuoid)	21		HUSKINS, 1925; WINGE, 1925.
" <i>sativa</i> (fatuoid type 1 ³⁾)	21, 19 + 1 ₁ + 1 ₃ 19 + 1 ₄		" 1927a.

¹⁾ The form studied by HUSKINS (1927b) was *A. gigantea* (Cornell).

²⁾ A great deal of irregularity occurred in the heterotypic division (only occasional normal arrangement of chromosomes on the equatorial plate being observed) and no cells were found that were definitely undergoing a homoeotypic division.

³⁾ Types ¹⁾ and ²⁾ (HUSKINS, 1927a), gave rise to normals, heterozygotes and fatuoids with different arrangements of chromosomes as shown respectively in the list above. In Type ³⁾ normals and heterozygotes segregated most frequently, but rarely dwarf sterile fatuoids with 40 chromosomes appeared. In type four heterozygotes were more abundant.

GRAMINEAE (continued)	n	2n	
<i>Avena</i> (continued)			
<i>Avena sativa</i> (fatuid type 2) ¹⁾	21, 21+1		
	20+1 ₃ , 20+1 ₄		HUSKINS, 1927a.
" <i>sativa</i> (fatuid type 3)	21, 19+1 ₁ , 40 ₁		" "
" (fatuid type 4)	41 ₁		" "
" <i>sativa</i> heterozygous fatu- oids F ₁ (normals) . . .	21	42	" 1927b.
" <i>sativa</i> heterozygous fa- tuoids F ₁ (het. fatuoids)	19+1 ₃ +1 ₁	42	" "
" <i>sativa</i> heterozygous fatu- oids F ₁ (hom. fatuoids)	19+1 ₄	42	" "
" <i>sativa</i> Type 2 heterozy- gous fatuid	20+1 ₁	41	" "
" <i>sativa</i> Type 3 dwarf ho- mozygous fatuoids . .	40		" "
" <i>sativa</i> Type 3 heterozy- gous fatuid	20+1 ₁	41	" "
" <i>sativa</i> Type 4 heterozy- gous fatuid	20+1 ₃ , 21+1 ₁	43	" "
" <i>sativa</i> Type 4 homozy- gous fatuid	22, 20+1 ₄	44	" 1927a.
" <i>sativa</i> Type A heterozy- gous fatuoids		42	" 1928c.
" <i>sativa</i> Type A homozy- gous fatuoids		42	" "
" <i>sativa</i> Type A heterozy- gous fatuoids (from Vic- tory Oats).	20+1 ₁	41	" "
" <i>sativa</i> Type B heterozy- gous fatuoids		41	" "
" <i>sativa</i> Type C heterozy- gous fatuoids		43, 44	" "
" — homozygous fatu- oids from vars. Banner Storm King, and Old Island	21 ²⁾	42	" 1926.
" — heterozygous fatu-			

¹⁾ See page 353 foot-note 3.

²⁾ Meiotic divisions were usually regular, but irregularities were found in a significantly large number of cases.

GRAMINEAE (continued)	n	2n	
<i>Avena</i> (continued)			
oids from vars. Banner			
and Victory	21 ¹⁾		HUSKINS, 1926.
<i>Avena sterilis</i>	21		KIHARA, 1919b, 1924.
	21	42	GOULDEN, 1926; HUSKINS, 1926 1927b.
		44	NIKOLAWEA, 1922b, 1923.
„ <i>strigosa</i>	7		KIHARA, 1919b, 1924; WINGE, 1925; GOULDEN, 1926.
	7	14	HUSKINS, 1926, 1927b.
		14	NIKOLAWEA, 1922b.
		14-16	„ 1923.
„ <i>stigosa</i> SCHREBER . . .	7		AASE & POWERS, 1926.
„ <i>wiestii</i>	7		DORSEY, E., 1925.
„ <i>wiestii</i> STEUDEL	7		AASE & POWERS, 1926.
„ — „Stanton's Prolif- fic Dwarf" ²⁾		42	GOULDEN, 1926.
<i>Arrhenatherum elatius</i> L. . . .	14		AASE & POWERS, 1926.
<i>Phragmites communis</i>	13		TISCHLER, 1918b.
„ <i>communis</i> var. <i>Pseu-</i> <i>dodonax</i>	16		„ „
FESTUCA ³⁾			
Section Montanae			
<i>Festuca montana</i> M. BIEB . .		14	LEVITSKY & KUZMINA, 1927.
Section Scariosae			
<i>Festuca granatensis</i> BOISS. (F. <i>scariosa</i> LAG.).		14	„ „ „ „
<i>Festuca Mairei</i> St.-Y.		28	„ „ „ „
Section Subbulbosae.			
<i>Festuca spadicea</i> L.		14	„ „ „ „
„ <i>triflora</i> DESF		14	„ „ „ „
<i>Festuca elatior</i> var. <i>arundinacea</i>		ca. 40	EVANS, 1926.
„ <i>elatior</i> L. subsp. <i>arun-</i> <i>dinacea</i> HACK. var. <i>genuina</i> HACK.		42	LEVITSKY & KUZMINA, 1927.
„ <i>elatior</i> L. subsp. <i>arun-</i> <i>dinacea</i> HACK. var. <i>Fenas</i> HACK. (glaucos- <i>cens</i> BOISS.) subvar. <i>corsica</i> HACK.		42	„ „ „ „

¹⁾ Irregularities of meiotic divisions occurred more frequently.

²⁾ This was obtained in the progeny of a selection from a cross between Aurora and Pringless Progress varieties of oats.

³⁾ Arrangement under sections is according to HACKEL and SAINT-YVES. For references see bibliography of LEVITSKY & KUZMINA, 1927.

GRAMINEAE (continued)	n	2n	
<i>Festuca</i> (continued)			
<i>Festuca elatior</i> L. subsp. <i>arundinacea</i> HACK var. <i>Le-tourneuxiana</i> St.-Y			
subvar. <i>Pitardii</i> St.-Y.		70	LEVITSKY & KUZMINA, 1927.
" <i>elatior</i> L. subsp. <i>arundinacea</i> HACK. var. <i>cirtensis</i> St.-Y. . . .		70	" " " "
" <i>elatior</i> var. <i>pratensis</i> .	7		EVANS, 1926.
" <i>elatior</i> var. <i>pratensis</i> subvar. <i>typica</i>		23	DE LITARDIÈRE, 1923a.
" <i>elatior</i> L. subsp. <i>pratensis</i> HACK. var. <i>genuina</i> HACK		14	LEVITSKY & KUZMINA, 1927.
" <i>gigantea</i> VILL.		42	" " " "
" <i>ovina</i> var. <i>Briquetii</i> subvar. <i>eu-Briquetii</i> .		23	DE LITARDIÈRE, 1923a.
" <i>ovina</i> var. <i>gallica</i> subvar. <i>Costei</i>		23	" " "
" <i>ovina</i> var. <i>glauca</i> subvar. <i>eu-glauca</i>		23	" " "
" <i>ovina</i> var. <i>tenuifolia</i> .		23	" " "
" <i>ovina</i> var. <i>valesiaca</i> . .		23	" " "
" <i>ovina</i> L. subsp. <i>eu-ovina</i> HACK. var. <i>capitata</i> HACK.		14	LEVITSKY & KUZMINA, 1927.
" <i>ovina</i> L. subsp. <i>eu-ovina</i> HACK. var. <i>vulgaris</i> KOCH. subvar. <i>pilifera</i> St.-Y.		14	" " " "
" <i>ovina</i> L. subsp. <i>eu-ovina</i> HACK. var. <i>duriuscula</i> KOCH. subvar. <i>genuina</i> KOCH.		42	" " " "
" <i>ovina</i> L. subsp. <i>Beckeri</i> HACK.		23	" " " "
" <i>ovina</i> L. subsp. <i>indigesta</i> HACK. var. <i>Litardierei</i> St.-Y.		70	" " " "
" <i>ovina</i> L. subsp. <i>sulcata</i> HACK. var. <i>Callieri</i> HACK. subvar. <i>conferta</i> St.-Y.		14	" " " "
" <i>ovina</i> L. subsp. <i>sulcata</i>			

GRAMINEAE (continued)	n	2n	
<i>Festuca</i> (continued)			
HACK. var. <i>valesiaca</i>			
KOCH		42 and 14	LEVITSKY & KUZMINA, 1927,
<i>Festuca ovina</i> L. subsp. <i>sulcata</i>			
HACK. var. <i>Duvalii</i>			
St.-Y.		42	" " " "
" <i>rubra</i> L. subsp. <i>euru-</i>			
<i>bra</i> var. <i>genuina</i> HACK		56	" " " "
" <i>rubra</i> L. subsp. <i>hetero-</i>			
<i>phylla</i> HACK.		42	" " " "
" <i>rubra</i> L. subsp. <i>neva-</i>			
<i>densis</i> HACK. var. <i>Ha-</i>			
<i>ckelii</i> LIT. et MAIRE,			
subvar. <i>brevifolia</i> LIT			
et MAIRE		70	" " " "
" <i>spadicea</i> var. <i>genuina</i>			
subvar. <i>aurea</i>		28	DE LITARDIÈRE, 1923a.
" <i>varia</i> var. <i>eu-scoparia</i>			
subvar. <i>Kernerii</i> . . .		28	" " "
<i>Lolium linicola</i> SONDER (L. <i>re-</i>			
<i>motum</i> SCHRNK.) . .		14	FAWORSKI, 1927.
" <i>perenne</i> L.		14	" "
" <i>perenne</i>	7		EVANS, 1926.
" <i>perenne</i> var. <i>multiflo-</i>			
<i>rum</i>	7		EVANS, 1926.
" <i>persicum</i> BOISS. . .		14	FAWORSKI, 1927.
" <i>temulentum</i> L. . . .		14	" "
" <i>perenne</i> × L. <i>perenne</i>			
var. <i>multiflorum</i> . . .	7 ¹⁾		EVANS, 1926.
<i>Secale africanum</i> STAPP. . . .		14, 15	EMME, 1927.
" <i>cereale</i>	7	15-16 ²⁾	" 1928.
" <i>cereale</i> L.		14	NIKOLAWEA, 1924.
" <i>cereale</i> L.		12	NĚMEC, 1910a.
	6		(WESTGATE) given by EAST,
			1915.
	8		NAKAO, 1911.
	7		SAKANURA, 1918; FERRAND,
			1923.
	7, 8		GOTOH, 1924; BELLING, 1925a.
" <i>cereale</i> L. var. <i>Rosen</i> . . .	7		DORSEY, E., 1925; AASE & POW-
			ERS, 1926.

¹⁾ Lagging chromosomes were occasionally found in the divisions of pollenmother cells.

²⁾ A nucleus with 23 chromosomes was also found.

GRAMINEAE (continued)	n	2n	
<i>Secale</i> (continued)			
<i>Secale cereale</i> L. (Winter Rye) .	7, 8	14, 16	KIHARA, 1924.
		14, 16	EMME, 1927.
" <i>cereale</i> L. (Summer Rye)	7, 8	14, 16	KIHARA, 1924.
		14, 16	EMME, 1927.
" <i>cereale</i> L. var. <i>Afghanicum</i> . VAV.		14, 15, 16	" "
		14, 16 ¹⁾	" 1928.
" <i>cereale</i> L. var. <i>Afghanicum</i> VAV. # 3046 . . .		14	" "
" <i>cereale</i> L. var. <i>eligulatum</i> VAV.		14, 16	" 1927.
" <i>cereale</i> L. var. <i>eligulatum</i> VAV. # 624		14	" 1928.
" <i>cereale</i> var. <i>Prolific</i> . .	7		THOMPSON, 1926a.
" <i>cereale</i> L. var. <i>vulgare</i> .	7	14	STOLZE, 1925.
" <i>cereale</i> L. var. <i>vulgare</i> KÖRN, ²⁾	7	14	EMME, 1928.
" <i>cereale</i> L. „nichtzerbrechlicher var.“		14	" "
" <i>cereale</i> L. (halbzerbrechlicher var.“	7	14	EMME, 1928.
" <i>cereale</i> (#3193 from Afghanistan) („halbzerbrechlicher var.).	7	14	" "
" <i>fragile</i> M.B.	7, 8	14, 16	" 1927, 1928.
" <i>montanum</i> Guss.	(6-) 7	14	STOLZE, 1925.
		14, 16 ³⁾	EMME, 1927.
" <i>montanum</i> Guss. s. l. . .	7, 8	14, 16	" 1928.
<i>Triticum acuminatum</i> KAJ. . .		28	KAJANUS, 1927.
" <i>aegilipoides</i> LINK. . .		14	STOLZE, 1925.
" <i>aegilipoides boeoticum</i> . .	7	14	KIHARA, 1924.
	7		PERCIVAL, 1926; MICZYNSKI, 1927.
" <i>aegilipoides</i> var. <i>Larionowi</i>	7		PERCIVAL, 1926; MICZYNSKI, 1927.
" <i>albidum</i>		42	SAPEHIN, 1927.
" <i>compactum</i>	8		NAKAO, 1911.
	21		SAX, 1921, 1928; BLEIER, 1926

¹⁾ In a few cells, only 15 chromosomes were counted.

²⁾ Three forms, winter, summer, and self-pollinated rye, from HERIBERT NILSON, were all found to have 14 chromosomes.

³⁾ Syndiploid plates with 29 and 42 chromosomes were found in the periblem and epidermis of this species.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> (continued)			
		42	SAKAMURA, 1918; DE MOL, 1924
	21	42	KIHARA, 1924.
		50	NIKOLAWEA, 1922a.
		44	" 1923.
<i>Triticum compactum</i> Host. . .	21		KATAYAMA, 1928.
		42	WATKINS, 1928.
" <i>compactum</i> var. <i>albiceps</i> KÖRN.	21		VAVILOV & JAKUSHKINA, 1925.
" <i>compactum</i> var. <i>creticum</i> MAZZ. ¹⁾	21		" " " "
" <i>compactum</i> var. <i>erinaceum</i>	21		PERCIVAL, 1926.
" <i>compactum</i> var. <i>Fetisowi</i> KÖRN.	21		VAVILOV & JAKUSHKINA, 1925.
" <i>compactum</i> Host. var. <i>Humboldtii</i> KÖRN. (Wash. hybrid #143)		42	SAX, 1922; SAX & GAINES, 1924.
" <i>compactum</i> Host. (Hybrid 128)	21		AASE & POWERS, 1926.
" <i>compactum</i> <i>Humboldtii</i> KCKE. (Hybrid 128)	21	42	GAINES & AASE, 1926.
" <i>compactum</i> <i>Humboldtii</i> KCKE.	$\frac{21_1}{2}$	21	GAINES & AASE, 1926.
" <i>compactum</i> var. <i>Komaba</i> No. I & II . .		42	KAGAWA, 1926-7.
" <i>compactum</i> Host. var. <i>splendens</i>	8		KOERNICKE, 1896.
" <i>dicoccum</i>		28	SAKAMURA, 1918; DE MOL, 1924; KAGAWA, 1926-7, 1927; NIKOLAWEA, 1922a 1923; SAX, 1922.
	14		SAX, 1921, 1928.
	14	28	KIHARA, 1924.
" <i>dicoccum</i> SCHÜBL. . .	14		KATAYAMA, 1928.
		28	WATKINS, 1928.
" <i>dicoccum</i> var. <i>Ajar</i> ²⁾ . .	14		PERCIVAL, 1926; MICZYNSKI, 1927.
	7		
" <i>dicoccum</i> var. <i>atratum</i> . .	14		MICZYNSKI, 1927.

¹⁾ Two different races of this variety were used, #2840 and #2841.

²⁾ According to MICZYNSKI (1927), this variety, from three different sources, gave the same number.

GRAMINEAE (continued)	n	2n
<i>Triticum</i> (continued)		
„ <i>dicoccum</i> SCHR. var.		
<i>Black Winter Emmer</i>	14	AASE & POWERS, 1926.
„ <i>dicoccum</i> var. <i>farrum</i>	14	PERCIVAL, 1926; MICZYNSKI, 1927.
„ <i>dicoccum</i> var. <i>farrum</i>		
f. <i>abyssinicum</i> . . .	14	VAVILOV & JAKUSHKINA, 1925.
„ <i>dicoccum</i> var. <i>farrum</i>		
f. <i>vianicum</i> VAV. . .	14	„ „ „ „
„ <i>dicoccum</i> var. <i>farrum</i>		
f. <i>wolgense</i> FLAKSB ¹).	14	„ „ „ „
„ <i>dicoccum pycnurum</i> .	14	MICZYNSKI, 1927.
„ <i>dicoccum pycnurum</i> AL.	14	VAVILOV & JAKUSHKINA, 1925.
„ <i>dicoccum rufum</i> ²) . .	14	MICZYNSKI, 1927.
„ <i>dicoccum uncinatum</i> .	14	„ „
„ <i>dicoccum vulpinum</i> .	14	„ „
(„ <i>polonicum</i> × <i>T. vulgare</i> F ₂) = <i>T. dicoccum</i>	28	MALINOWSKI (1926), 1929.
„ <i>dicoccoides</i>	14	28 KIHARA, 1924.
	7	DE MOL, 1924 ³).
	14	BLEIER, 1926; TSCHERMAK & BLEIER, 1926.
„ <i>dicoccoides</i> KÖRN. . .	14	AASE & POWERS, 1926.
„ <i>dicoccoides</i> var. <i>Aaronsohni</i>	14	PERCIVAL, 1926.
	28	WATKINS, 1928.
„ <i>dicoccoides</i> KÖRN. var. <i>Aaronsohni</i> FLAKSB.	28	(SVESHNIKOVA), given by FLAKSBERGER, 1928.
„ <i>dicoccoides</i> KOTSCHY. var. <i>Aaronsohni</i> . .	14	STOLZE, 1925.
„ <i>dicoccoides</i> var. <i>fulvovillosum</i> KÖRN. . .	14	VAVILOV & JAKUSHKINA, 1925.
„ <i>dicoccoides</i> var. <i>fulvovillosum</i> PERC. . . .	28	(SVESHNIKOVA), given by FLAKSBERGER, 1928.
„ <i>dicoccoides</i> var. <i>Kotschyanum</i> SCHULZ. .	28	(SVESHNIKOVA), given by FLAKSBERGER, 1928.

¹) Three different races of this variety were used, #131, #2992, and L 2.

²) See page 359 foot-note 2.

³) Spikelets of the material used by DE MOL (1924) for which he gave n = 7 were re-examined by FLAKSBERGER (1928) and found to belong to *Triticum dicoccoides*.

GRAMINEAE (continued)	n	2n
<i>Triticum</i> (continued)		
<i>Triticum dicoccoides</i> var. <i>spontaneonigrum</i>	14	PERCIVAL, 1926; MICZYNEKI, 1927.
„ <i>dicoccoides</i> var. <i>spontaneonigrum</i> FLAKSB		28 (SVESHNIKOVA), given by FLAKSBERGER, 1928.
„ <i>dicoccoides</i> var. <i>spontaneovillosum</i>	14	MICZYNSKI, 1927.
„ <i>dicoccoides</i> var. <i>Timopheevi</i> ZHUK. . . .		28 (SVESHNIKOVA), given by FLAKSBERGER, 1928.
„ <i>dicoccoides</i> var. (?)	14	MICZYNSKI, 1927.
„ <i>durum</i> ¹⁾		28 SAKAMURA, 1918; DE MOL, 1924; NIKOLAWEA, 1922a; KAGAWA, 1926-27.
	14	BLEIER, 1926; TSCHERMAK & BLEIER, 1926; KAGAWA, 1928; SAX, 1922, 1923, 1928; NIKOLAWEA, 1923.
	14	28 SAX, 1921; KIHARA, 1924; WATKINS, 1924.
„ <i>durum</i> DESF.	14	KATAYAMA, 1928.
„ <i>durum</i> var. <i>affine</i>	14	28 WATKINS, 1928.
„ <i>durum</i> <i>aglossicon</i>	14	PERCIVAL, 1926.
„ <i>durum</i> var. <i>australe</i>	14	FLAKSBERGER, 1926.
„ <i>durum</i> DESF. <i>Blé dur de Médéah</i>		28 KAGAWA 1928.
„ <i>durum</i> var. <i>hordeiforme</i>	14	PERCIVAL, 1926.
„ <i>durum</i> var. <i>hordeiforme</i> HOST. ²⁾	14	VAILOV & JAKUSHKINA, 1925.
„ DESF. var. <i>hordeiforme</i> KÖRN. (<i>Kubanka</i>)		28 SAX, 1918, 1922; SAX & GAINES, 1924.
„ <i>durum</i> DESF. var. <i>Kubanka</i>	14	AASE & POWERS, 1926.
„ <i>durum</i> <i>leucurum</i>	14	-MICZYNSKI, 1927. .
„ <i>durum</i> var. <i>libicum</i> KÖRN.	14	VAILOV & JAKUSHKINA, 1925.

¹⁾ WATKINS (1924) states that his results on somatic counts in varieties of species *durum* and *turgidum*, and on heterotype counts in varieties of the species *durum*, *polonicum*, *turgidum* and *vulgare* agree with those of SAKAMURA and SAX.

²⁾ Three different races of this variety were used, #432, #2802 and Y₁.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> (continued)			
<i>Triticum durum</i> var. <i>melanopus</i>			
AL.	14		VAVILOV & JAKUSHKINA, 1925.
" <i>durum</i> var. <i>Reichen- bachii</i> . KÖRN. . . .	14		" " " "
" <i>polonicum</i> × <i>T. vul- gare</i> F ₂) = <i>T. durum</i>		28	MALINOWSKI (1926), 1929.
" <i>erythrospermum</i> . . .		42	SAPEHIN, 1927.
" <i>ferrugineum</i>		42	" "
" <i>ferrugineum sibiricum</i>		42	" "
" <i>lutescens</i>		42	" "
" <i>militurum</i>		42 ¹⁾	" "
" <i>monococcum</i>	8		PERCIVAL, 1921.
		14	SAKAMURA, 1918; DE MOL, 1924; NIKOLAEWA, 1922a, 1923; KAGAWA, 1926, 1927.
	7	14	KIHARA, 1924.
	7		SAX, 1921, 1928; THOMPSON, 1926b; BLEIER, 1926.
" <i>monococcum</i> L. . . .	7		AASE & POWERS, 1926; KATAY- AMA, 1928.
		14	KAJANUS, 1927.
" <i>monococcum</i> var. <i>fla- vescens</i> ²⁾	7		PERCIVAL, 1926; MICZYNSKI, 1927.
" <i>monococcum</i> var. <i>fla- vescens</i> KÖRN. ³⁾ . .	7		VAVILOV & JAKUSHKINA, 1925.
" <i>monococcum</i> <i>Horne- mannii</i>	7		MICZYNSKI, 1927.
" <i>monococcum</i> var. <i>Hor- nemanni</i> KÖRN. . . .	7	14	SAX, 1922.
" <i>monococcum</i> var. <i>Hor- nemanni</i> CLEM. . . .	7		VAVILOV & JAKUSHKINA, 1925.
" <i>monococcum</i> <i>Komaba</i> No. I.		14	KAGAWA, 1926-7.
" <i>monococcum</i> <i>Petite</i> <i>Epeautre</i>		14	KAGAWA, 1926-7.
" <i>monococcum</i> var. <i>vul- gare</i>	7		PERCIVAL, 1926.
" <i>monococcum</i> var. <i>vul- gare</i> KÖRN.	7		VAVILOV & JAKUSHKINA, 1925.

¹⁾ *T. militurum* had as a rule abnormal nuclear division.

²⁾ According to MICZYNSKI (1927) this variety from two different sources gave the same number of chromosomes.

³⁾ Two different races of this variety were used, #81 and #138.

GRAMINEAE(continued)	n	2n	
<i>Triticum</i> (continued)			
<i>Triticum obtusatum</i> KAJ. . . .		28	KAJANUS, 1927.
" <i>orientale</i> PERC. . . .	14		BLEIER, 1926.
		28	NIKOLAWEA, 1923; WATKINS, 1928.
" <i>orientale</i> var. <i>notabile</i> .	14		PERCIVAL, 1926.
" <i>persicum</i>	14	28	(DELAUNAY, 1925) given by VAVILOV & JAKUSHKINA, 1925; (NIKOLAWEA) given by VAVILOV & JAKUSHKINA, 1925.
		28	(NIKOLAWEA) given by ATABEKOR, 1925; NIKOLAWEA, 1923; WATKINS, 1923.
	14		BLEIER, 1926; VAVILOV & JAKUSHKINA, 1925.
" <i>persicum</i> (Black Persian)	14		THOMPSON, 1927.
" <i>persicum</i> VAV. var. <i>coeruleum</i> ZHUK. . .		28	ZHUKOVSKI, 1923.
" <i>persicum</i> VAV. var. <i>iginosum</i> ZHUK. . .		28	" "
" <i>persicum</i> VAV. var. <i>rubiginosum</i> ZHUK. .		28	" "
" <i>persicum</i> VAV. var. <i>stramineum</i> ZHUK. . .		28	" "
" <i>polonicum</i> ¹⁾		28	SAKAMURA, 1918; NIKOLAWEA, 1922a, 1923; DE MOL, 1924; KAGAWA, 1927.
	14		SAX, 1921, 1923, 1926; WATKINS, 1924; BLEIER, 1926.
	14	28	KIHARA, 1924.
" <i>polonicum</i> L.	14		KATAYAMA, 1925.
		28	WATKINS, 1928.
" <i>polonicum</i> var. <i>Komaba</i> 2		28	KAGAWA, 1926-7.
" <i>polonicum</i> var. <i>levisimum</i>	14		PERCIVAL, 1926.
" <i>polonicum</i> var. <i>nigrobarbatum</i> KÖRN. . .	14		VAVILOV & JAKUSHKINA, 1925.
" <i>polonicum</i> var. <i>villosum</i> KÖRN.	14	28	" " "

¹⁾ WATKINS (1924) states that his results on somatic counts in varieties of species *durum* and *turgidum*, and on heterotype counts in varieties of the species *durum*, *polonicum*, *turgidum* and *vulgare*, agree with those of SAKAMURA & SAX.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> (continued)			
<i>Triticum polonicum</i> L. <i>villosum</i>			
KÖRN.	14	28	SAX, 1922; SAX & GAINES, 1924
" <i>pseudocianum</i>		42 ¹⁾	SAPEHIN, 1927.
" <i>pyramidale</i> PERC. . .	14		BLEIER, 1926.
		28	WATKINS, 1928.
" <i>pyramidale</i> var. <i>re-</i> <i>cognitum</i>	14		PERCIVAL, 1926.
" <i>pyramidale</i> <i>recogni-</i> <i>tum</i> (<i>White Seidi</i>) . .	14		MICZYNSKI, 1927.
" <i>spelta</i>		42	DE MOL, 1924; KAGAWA, 1926
		-7.	
	21		SAX, 1922, 1928.
		44	NIKOLAWEA, 1922a.
		44-50	" 1923.
	21	42	KIHARA, 1924.
" <i>spelta</i> L.		42	WATKINS, 1928.
" <i>spelta</i> var. <i>album</i> . .	21		PERCIVAL, 1926; MICZYNSKI,
			1927.
" <i>spelta</i> var. <i>album</i> AL. ²⁾	21		VAVILOV & JAKUSHKINA, 1925;
			STOLZE 1925.
" <i>spelta</i> L. var. <i>Al-</i> <i>stroum</i>	21		AASE & POWERS, 1926.
" <i>spelta</i> vaf. <i>Arduinii</i> Mazz.	21		VAVILOV & JAKUSHKINA, 1925.
" <i>spelta</i> L. var. <i>Bearded</i> <i>Spelt</i>	21		AASE & POWERS, 1926.
" <i>spelta</i> <i>coeruleum</i> . . .	21		MICZYNSKI, 1927.
" <i>spelta</i> var. <i>coeruleum</i> AL.	21		VAVILOV & JAKUSHKINA, 1925.
" <i>spelta</i> var. <i>Schenki</i> KÖRN.	21		" " " "
" <i>spelta</i> L. var. <i>White</i> <i>Spring Belt</i>	21		AASE & POWERS, 1926.
(,, <i>dicoccum</i> × <i>T. vulga-</i> <i>re</i> F ₂) = <i>T. spelta</i> . .		42	MALINOWSKI (1926), 1929.
(,, <i>polonicum</i> × <i>T. vul-</i> <i>gare</i> F ₂) = <i>T. spelta</i> . .		42	" " "
" <i>sphaerococcum</i> PER- CIV.		42	WATKINS, 1928 ¹
" <i>sphaerococcum</i> var. <i>tumidum</i>	21		PERCIVAL, 1926.

¹⁾ Of a number of soft wheats studied *T. pseudocianum* showed the highest percentage (1 %) of abnormalities in division (1 or 2 univalents).

²⁾ Two different races of this variety were used. #123 and #3367.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> (continued)			
<i>Triticum Thandar</i> REUT.			(SHEPELJEVA), given by FLAKS-BERGER, 1926.
„ <i>turgidum</i> ¹⁾		28	SAKAMURA, 1918; NIKOLAWEA, 1922a, 1923; DE MOL, 1924.
	14		SAX, 1921, 1928; BLEIER, 1926.
	14	28	KIHARA, 1924; WATKINS, 1924.
„ <i>turgidum</i> L.		24	WATKINS, 1928.
„ <i>turgidum</i> L. var. <i>Alaska</i>	14		AASE & POWERS, 1926.
„ <i>turgidum</i> var. <i>buccale</i>	14		THOMPSON, 1926b.
„ <i>turgidum dinurum</i> (Rivet)	14		MICZYNSKI, 1927.
„ <i>turgidum</i> var. <i>Rivet</i>	14		WATKINS, 1927b.
„ <i>turgidum gentile</i>	14		PERCIVAL, 1926.
„ <i>turgidum</i> var. <i>iodurum</i> KÖRN. (Rivet)		28	WATKINS, 1925.
„ <i>turgidum</i> var. <i>iodurum</i>	14		KAGAWA, 1926-7.
„ <i>turgidum iodurum</i> (Blue Cone)	14		MICZYNSKI, 1927.
„ <i>turgidum</i> var. <i>Komaba</i> No. I	14		KAGAWA, 1927-6.
„ <i>turgidum</i> var. <i>lusitanicum</i>	14		PERCIVAL, 1926.
„ <i>turgidum</i> var. <i>lusitanicum</i> KÖRN. ²⁾	14		VAVILOV & JAKUSHKINA, 1925.
„ <i>turgidum</i> var. <i>Plinianum</i> KÖRN.	14		„ „ „ „
„ <i>turgidum</i> L. var. <i>pseudocervinum</i> KÖRN. (Alaska)		28	SAX, 1922; SAX & GAINES, 1924
„ <i>villosum</i>	7		BLEIER, 1928b.
„ <i>vulgare</i> ¹⁾	6		GOLINSKI, 1893; KOENICKE, 1896; NAKAO, 1911; BALLY, 1912, 1919; (DUDLEY), given by EAST, 1915; PERCIVAL, 1921.
	8	16	OVERTON, 1893a, b.

¹⁾ WATKINS (1924) states that his results on somatic counts in varieties of species *durum* and *turgidum* and on heterotype counts in varieties of the species *durum*, *polonicum*, *turgidum* and *vulgare* agree with those of SAKAMURA and SAX.

²⁾ Two different races of this variety were used, #3326 and #3362.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> (continued)			
	21	42	SAKAMURA, 1918; KIHARA, 1924; (NIKOLAEWA), given by VAVILOV & JAKUSHKINA, 1925.
	21		DE MOL, 1924; SAX, 1921, 1922, 1928; BLEIER, 1926; WATKINS, 1924.
		42	KAGAWA, 1926-7, 1927.
		42-44	NIKOLAEWA, 1923.
<i>Triticum vulgare</i> (25 forms) . .	21		PERCIVAL, 1926.
„ <i>vulgare</i> Host. . . .	21		KATAYAMA, 1921.
		42	WATKINS, 1928.
„ <i>vulgare albidum</i> (Starling)	21		MICZYNSKI, 1927.
„ <i>vulgare</i> VILL. var. <i>albidum</i> KÖRN. (Amby)		42	SAX & GAINES, 1924.
„ <i>vulgare</i> var. <i>albidum</i> KÖRN.	21		THOMPSON, 1926a.
„ <i>vulgare</i> var. <i>albidum</i> KÖRN. (Swedish Iron)		42	WATKINS, 1925.
„ <i>vulgare</i> „Chul”. . . .	21		THOMPSON, 1928.
„ <i>vulgare</i> VILL. var. <i>Bluestem</i>	21		AASE & POWERS, 1926.
„ <i>vulgare</i> var. <i>erythroleucum</i> KÖRN.	21		VAVILOV & JAKUSHKINA, 1925.
„ <i>vulgare</i> var. <i>erythrospermum</i> KÖRN. ¹⁾ . .	21		VAVILOV & JAKUSHKINA, 1925.
		42	ZHUKOVSKII, 1923; NIKOLAEWA, 1924.
„ <i>vulgare erythrospermum</i> (Ribeiro) . . .	21		MICZYNSKI, 1927.
„ <i>vulgare erythrospermum</i> (Usher's Red).	21		„ „
„ <i>vulgare ferrugineum</i> (Molawska)	21		„ „
„ <i>vulgare</i> var. <i>ferrugineum</i> AL. ²⁾	21		VAVILOV & JAKUSHKINA, 1925.
„ <i>vulgare</i> var. <i>fuligonomum</i> Alpaca ³⁾	21		„ „ „ „
„ <i>vulgare Horogi</i> VAV. . .	21		„ „ „ „

¹⁾ Five different races of this variety were used, #2386, #2823, #3379, #3381 and A-139. (VAVILOV & JAKUSHKINA, 1925).

²⁾ Three different races of this variety were used, #5, #127, and #2406.

³⁾ Four different races of this variety were used, I, II, IV and (O E.).

GRAMINEAE (continued)	n	2n
<i>Triticum</i> (continued)		
<i>Triticum vulgare</i> Host. <i>Komamaba</i> 3	21	KAGAWA, 1928.
„ <i>vulgare</i> VILL. var. <i>Hussar</i>	21	AASE & POWERS, 1926.
„ <i>vulgare lutescens</i> AL. ¹⁾	21	VAVILOV & JAKUSHKINA, 1925.
„ <i>vulgare lutescens</i> KÖRN. (Marquis)	42	SAX, 1922; SAX & SAX, 1924; SAX & GAINES, 1924.
„ <i>vulgare lutescens</i> KÖRN. (Yeomen)	42	WATKINS, 1925.
„ <i>vulgare lutescens</i> (Trump)	21	MICZYNSKI, 1925.
„ <i>vulgare</i> , Marquis (dwarf)	20	THOMPSON, 1922.
„ <i>vulgare</i> VILL. var. <i>Martin</i>	21	AASE & POWERS, 1926.
„ <i>vulgare meridionale</i>	21	MICZYNSKI, 1927.
„ <i>vulgare militurum</i> (Dividenden)	21	„ „
„ <i>vulgare militurum</i> (Standard Red)	21	„ „
„ <i>vulgare</i> „Pusa 12”	21	THOMPSON, 1928.
„ <i>vulgare pyrothrix</i> (Hallet Imp. Pedigree)	21	MICZYNSKI, 1927.
„ <i>vulgare</i> VILL. var. <i>Ridit</i>	21	AASE & POWERS, 1926.
„ <i>vulgare</i> var. <i>Swedish Iron</i>	21	WATKINS, 1927b.
„ <i>vulgare</i> VILL. var. <i>Triplet</i>	21	AASE & POWERS, 1926.
„ <i>vulgare Utsunomiya</i> Agr. Coll. No. I.	21	KAGAWA, 1928.
„ <i>vulgare</i> var. <i>Yeoman</i>	21	WATKINS, 1927b.
„ Speltoids:		
Type A heterozygous speltoids	19+1 ₁ +1 ₃	42 HUSKINS, 1928a.
Type A homozygous speltoids	19+1 ₄	42 „ „
Type B heterozygous speltoids	20+1 ₁	41 „ „
		41 „ 1928b

¹⁾ Two different races of this variety were used, #188 and #2718.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> (continued):			
Type B homozygous spel-			
toids		40	HUSKINS, 1928a.
Type B homozygous spel-			
toids	20+1 ₁	41	" "
	or 19+1 ₃	41	" 1928b.
Type C heterozygous spel-			
toids	20+1 ₃	43	" 1928a.
		43	" 1928b.
Type C homozygous spel-			
toids		44	" 1928, 1928b.
<i>Triticum</i> Hybrids:			
" <i>aegilipoides boeoticum</i>			
× <i>T. dicoccum</i> . .	$7 + \frac{1_1}{2}$		KIHARA & NISHIYAMA, 1928.
	$1_3-3_3+6,4,3,$		
	$+6_1,7_1$		
	$\frac{2}{2}$		
" <i>dicoccum</i> × <i>T. mon-</i>			
<i>ococcum</i>	$7 + \frac{1_1}{2}$		
	$1_3-3_3+6,4^1),$		
	$3+6_1,7_1$		" " "
	$\frac{2}{2}$		
" <i>dicoccum</i> × <i>T. vulga-</i>			
<i>re</i> (spelta type) . .		42	MALINOWSKI, 1925; (1926)
			1929.
" <i>dicoccum</i> SCHÜBL. ×			
<i>T. vulgare</i> Host. F ₂		28, 42 ²⁾	MALINOWSKI, 1926.
" <i>dicoccum</i> var. <i>farrum</i>			
× <i>T. vulgare</i> var.			
Marquis F ₂ ³⁾ . .	$14+0_1-4_1$		
	$\frac{2}{2}$		THOMPSON & HOLLIGSHEAD,
	15-17		1927.
	$15-17+6_1,4_1,3_1$		SAX, 1922.
	$\frac{2}{2}$		
" <i>durum</i> × <i>T. vulgare</i>			
	$14^4)+7_1$		KIHARA & NISHIYAMA, 1928.
	$\frac{2}{2}$		

¹⁾ Sometimes a bi-bivalent (1₁₁ + 1₁₁), not a tetravalent, appeared in the complex.

²⁾ F₂ plants of the *dicoccum* type had 28, and those of the *vulgare* type had 42 chromosomes.

³⁾ Of 28 F₂ hybrids, 24 had 14 bivalents and were *dicoccum*-like and had 15—17 bivalents, and were intermediate in characters.

⁴⁾ Rarely 1—2 trivalents were seen.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> Hybrids (continued):			
<i>Triticum durum</i> × <i>T. vulgare</i> F ₁	$14 + \frac{7_1}{2}$	35	TOCHINAI & KIHARA, 1927.
„ <i>durum</i> × <i>T. vulgare</i> F ₂		30, 31, 33, 37, 38,	„ „ „
„ <i>durum</i> × <i>T. vulgare</i> F ₃		28, 29, 37, 39, 40	„ „ „
„ <i>durum</i> × <i>T. vulgare</i> F ₄ (<i>durum</i> type) . . .	$14, 14 + 1_1$ $14 + \frac{2_1}{2}$ $14 + \frac{7_1}{2}$	28, 29	„ „ „
„ <i>durum</i> × <i>T. vulgare</i> F ₄ (<i>vulgare</i> type) . . .	$16 + 2 - 3_1$ $\frac{2}{2}$ $19 + 1_1$ $20 + 1_1$	34-37, 39, 41	„ „ „
„ <i>durum</i> (Kubanka) × { <i>T. vulgare</i> (Mar- quis) × <i>T. durum</i> (Kubanka) F ₁ } . . .	$14 + 0 - 5_1, 7_1$ $\frac{2}{2}$	28-33, SAX, 1928. 35	
„ <i>monococcum</i> × <i>T. tur-</i> <i>gidum</i> var. <i>buccale</i> . . .	3-7+ $\frac{7_1, 9_1, 11_1, 13_1, 15_1}{2}$		THOMPSON, 1926b.
„ <i>monococcum</i> × <i>T. tur-</i> <i>gidum pseudocervi-</i> <i>num</i> KORN (Alaska)	$7 + \frac{7_1 14_1}{2}$	21	SAX, 1922.
„ <i>persicum</i> (Black Per- sian) × <i>T. dicoccum</i> ¹⁾	14		THOMPSON, 1927.
„ <i>polonicum</i> × <i>T. spel-</i> <i>ta</i> ²⁾		40	KIHARA, 1924.
„ <i>polonicum</i> × <i>T. spel-</i> <i>ta</i> F ₄		42, ca 42	TOCHINAI & KIHARA, 1927.
„ <i>polonicum</i> × <i>T. vul-</i> <i>gare</i> F ₂ (<i>dicoccum</i> type)		28	MALINOWSKI, 1925, (1926), 1929.

¹⁾ Of the hybrid *Triticum persicum* × *T. vulgare*, THOMPSON (1927) says there were lagging chromosomes in the pentaploid forms.

²⁾ Two individuals (2-8-31) and (3-3-3-6) arose from this cross with 40 chromosomes that were dwarf and partially dwarf.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> Hybrids (Continued)			
<i>Triticum polonicum</i> × <i>T. vulgare</i> F ₂ (spelta type)		42	MALINOWSKI, 1925, (1926); 1929,
" <i>polonicum</i> × <i>T. vulgare</i> F ₂ (durum type)		28	MALINOWSKI, (1926) 1929.
" <i>polonicum</i> L. × <i>T. vulgare</i> Host. F ₃ ¹⁾		28	MALINOWSKI, 1926.
D _{2g} ²⁾ (<i>Triticum polonicum</i> × <i>T. spelta</i>) × <i>T. spelta</i>	20+1 ₁	41	NISHIYAMA, 1928a.
D _{2f} ²⁾ (<i>Triticum polonicum</i> × <i>T. spelta</i>) × <i>T. spelta</i>	20+1 ₁	41	" "
<i>Triticum spelta</i> × D _{2g} (<i>T. polonicum</i> × <i>T. spelta</i>)	20+1 ₁	41	NISHIYAMA, 1928a
" <i>spelta</i> × D _{2f} (<i>T. polonicum</i> × <i>T. spelta</i>)	20+1 ₁	41	" "
" <i>spelta</i> × <i>T. monococcum</i> ³⁾	0.5+28 ₁ -18 ₁ 2		MELBURN & THOMPSON, 1927.
" <i>spelta</i> × <i>T. aegilipoides boeoticum</i>	7+14 ₁ , 2 10+8 ₁ ,13-33 2 +7, 5, 4, +11 ₁ ,14 ₁ ,15 ₁ , 2		KIHARA & NISHIYAMA, 1928
" <i>turgidum</i> var. <i>buccale</i> × <i>T. dicoccum</i>	14		THOMPSON, 1926b.
" <i>turgidum</i> × <i>T. compactum</i> F ₄		42, ca 42	TOCHINAI & KIHARA, 1927.
{ " <i>turgidum</i> (Rivet) × <i>T. vulgare</i> (Iron) } × <i>T. turgidum</i> (Rivet)	14-21		WATKINS, 1927a.
" <i>turgidum</i> (Rivet) × <i>T. vulgare</i> Swedish Iron or Yeoman) F ₂			

¹⁾ Root-tips of plants of 4 types of the F₃ generation, i.e., *polonicum*-, *dicoccum* and *spelta*-like plants, showed 28 chromosomes.

²⁾ D_{2g} and D_{2f} refer to the dwarf plants obtained by KIHARA (1924) from *T. polonicum* and *T. spelta*.

³⁾ In the homoeotypic division 4-13 lagging chromosomes were seen.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> Hybrids (continued):			
Type 1 ¹⁾ round glumed <i>turgidum</i>	28		WATKINS, 1927b.
Type 2 <i>vulgare</i>	42		" "
Type 3. intermediate types			
1 and 2	28-42		" "
Type 4. heterozygous round glumed <i>turgidum</i>	28		" "
Type 5. heterozygous speltoid	42		" "
Type 6. intermediates between types 4 and 5 . . .	28-42		" "
Type 7. <i>turgidum</i>	28		" "
Type 8. <i>speltoid</i>	42		" "
Type 9. intermediates between types 7 and 8 . .	28-42		" "
{ <i>Triticum vulgare</i> (Marquis) × × <i>T. durum</i> (Kubanka) F ₁ } × <i>T. durum</i> (Kubanka) . .	$14 + \frac{0_1 - 6_1}{2}$	28-35 ²⁾	SAX, 1928.
" <i>vulgare</i> (Pusa 12 × Chul) F ₁	$19-20 + \frac{1_1 - 2_1}{2}$		THOMPSON, 1928.
" (Chul × Marquis) normal & dwarf . .	20+, 21+ ³⁾	42	GOULDEN, 1926.
" (Kota × Marquis) normal & dwarf . .	21 ⁴⁾	42	GOULDEN 1926.
" <i>vulgare</i> (Marquis) × <i>T. durum</i> Jumillo F ₂ ⁵⁾		14, 15, 16- 19, 20, 21	THOMPSON, 1925.
" „Marquillo” (Marquis × Jumillo)	14		ELDERS, 1927.

¹⁾ The *turgidum* and *vulgare* types were found not only to owe their differences to difference in chromosome number but to factor differences also.

²⁾ Only 4 of 151 plants had 35 chromosomes, while 71 plants had 28 chromosomes.

³⁾ Though no attempt was made to count the chromosomes in heterotypic plates, there was usually one lagging chromosome (2 in one case) present in both normal and dwarf plants.

⁴⁾ Most of the division figures showed no irregularities, but occasionally in dwarf plants, a cell showed a lagging chromosome.

⁵⁾ THOMPSON found in F₂ + F₃ some plants resembling *T. durum* and some like *T. vulgare* and some intermediate. The chromosome numbers corresponded to the types and forms with intermediate numbers and intermediate appearance tended to be eliminated in F₃.

GRAMINEAE (continued)	n	2n
<i>Triticum</i> Hybrids (Continued)		
<i>Triticum</i> „H-44-24” (Marquis × Yaroslav Emmer)	$28 \frac{1}{2}$	ELDERS, 1927.
(„ <i>vulgare militurum</i> 00274 × <i>T. durum</i> <i>melanopus</i> 00122)F ₂	$16 + 4 \frac{1}{2}$	SAPEHIN & SAPEHIN, 1925 ³).
(„ <i>vulgare militurum</i> 00274 × <i>T. durum</i> <i>melanopus</i> 00122)F ₆	$16 + 4 \frac{1}{2}$	„ „ „ „
(„ <i>vulgare militurum</i> 00274 × <i>T. durum</i> <i>melanopus</i> 00122)F ₇ ³	$5 + 14 \frac{1}{2}$ $16 + 10 \frac{1}{2}$	„ „ „ „
„ <i>vulgare militurum</i> 00274 × <i>T. durum</i> <i>melanopus</i> 00/22 (7 types)	21	SAPEHIN, 1928.
„ <i>vulgare militurum</i> 00274 × <i>T. durum</i> <i>melanopus</i> 00/22 (ty- pe 5)	$16 + 4 \frac{1}{2}$	„ „
„ <i>dicoccum</i> × (<i>T. vul-</i> <i>gare</i> 1 × <i>T. dicoccum</i>		
„ <i>durum</i> × (<i>T. vulgare</i> 1 × <i>T. durum</i> . . .		
„ <i>durum</i> × (<i>T. vulgare</i> 2 × <i>T. durum</i>) . . .	$7 + 1 \frac{1}{2} - 7 \frac{1}{2}$ ⁴	THOMPSON & CAMERON, 1928.
„ <i>vulgare</i> × (<i>T. vulgare</i>		

¹) Lagging chromosomes were found in the metaphase and anaphase stages of pollen-mother-cell division.

²) Of a number of crosses between forms of *Triticum albidum*, *T. erythrospermum*, *T. ferrugineum*, *T. lutescens*, *T. militurum* and *T. pseudocanicum*, only one cross of a form of *T. ferrugineum* and a form of *T. erythrospermum* showed 41 chromosomes. (SAPEHIN, 1927).

³) A second type showed no regular number of bivalents and univalents and division was very irregular.

⁴) In the gametes of these hybrids it was far more frequent to find 0 univalents than to find 7, and gametes with an intermediate number of univalents (1—6) were in much smaller proportion than expected.

GRAMINEAE (continued)	n	2n	
<i>Triticum</i> Hybrids (continued)			
1 × <i>T. durum</i> . . .			
<i>Triticum vulgare</i> × (<i>T. vulgare</i>			
1 × <i>T. dicoccoides</i>) . . .			
„ <i>vulgare</i> 2 × (<i>T. vulgare</i>			
2 × <i>T. durum</i>) . . .			
„ <i>vulgare</i> var. <i>albidum</i>			
KÖRN. × <i>Secale cereale</i> var. <i>Prolific</i> . . .	28 ¹⁾		THOMPSON, 1926a.
(„ <i>vulgare</i> var. <i>albidum</i>			
KÖRN. × <i>Secale cereale</i> var. <i>Prolific</i>)			
× <i>T. vulgare</i> var. <i>albidum</i> KÖRN. . . .	21 + $\frac{3_1}{2}$		„ „
„ <i>vulgare</i> var. <i>erythro-</i>			
<i>permum</i> × <i>Secale cereale</i> F ₁		28	NIKOLAWEA, 1924..
„ <i>vulgare</i> var. <i>erythro-</i>			
<i>permum</i> × <i>Secale cereale</i> F ₂	42-44, 50 ²⁾		„ „
„ <i>vulgare</i> × <i>Aegilops</i>			
<i>ovata</i>	ca. 12		BALLY, 1919
„ <i>vulgare</i> var. <i>Red Has-</i>			
<i>sar</i> × <i>Aegilops cylin-</i>			
<i>drica</i>	7 + $\frac{21_1}{2}$		GAINES & AASE, 1926.
„ <i>vulgare</i> (Komaba No.			
3) × <i>Aegilops cylin-</i>			
<i>drica</i> Host.	7 + $\frac{21_1}{2}$	36	KAGAWA, 1928.
„ <i>durum</i> (Ble' dur de			
<i>Médéah</i>) × <i>Aegilops</i>			
<i>ovata</i> L. F ₁		28	„ „
AEGILOPS ³⁾			
Section <i>Polyeides</i> ZHUK.			
<i>Aegilops biuncialis</i> Vis.	14		SOROKINA, 1928.
		28	SCHIEHMANN, 1928b.

¹⁾ Occasionally 25, 26 or 27 chromosomes were counted and then mating of 1, 2 and rarely 3 pairs took place. An F₂ plant showed 17 + 2₁ and an F₄ plant showed 17 chromosomes, among which no univalents were expected.

²⁾ One plant of 6 had 50 chromosomes in the root-tips and the remainder had 42—44.

³⁾ Arrangement under sections is according to „Berliner Herbar”.

GRAMINEAE (continued)		n	2n	
AEGILOPS (continued)				
<i>Aegilops ovata</i>	16	32	BALLY, 1912, 1919.	
	14		PERCIVAL, 1923; AASE & POWERS, 1926; TSCHERMAK & BLEIER, 1926; BLEIER, 1928b	
			SAX, 1928, (1926) 1929.	
	14	28	KIHARA, 1924; VAVILOV & JAKUSHKINA, 1925.	
„ <i>ovata</i> L.	14		PERCIVAL, 1926.	
	14	28	KAGAWA, 1928.	
„ <i>ovata</i> var. <i>anatolica</i> .	7 ¹⁾	14	SCHIEHMANN, 1928a, b.	
„ <i>ovata</i> ssp. <i>gibberosa</i> ZHUK.	14		SOROKINA, 1928.	
„ <i>ovata</i> ssp. <i>planiuscula</i> ZHUK.	14		„ „	
„ <i>ovata</i> var. <i>typica</i> . . .	14	28	SCHIEHMANN, 1928a, b.	
„ <i>ovata</i> ssp. <i>umbonata</i> ZHUK.	14		SOROKINA, 1928.	
„ <i>triaristata</i>		28, 42	SCHIEHMANN, 1928b.	
„ <i>triaristata</i> ssp. <i>contorta</i> ZHUK.	14		SOROKINA, 1928.	
„ <i>triaristata</i> ssp. <i>recta</i> ZHUK.	14		„ „	
Section <i>Surculosa</i> ZHUK.				
<i>Aegilops triuncialis</i>	14		AASE & POWERS, 1926; SCHIEHMANN, 1928a.	
	14	28	SCHIEHMANN, 1928b.	
„ <i>triuncialis</i> L.	14		PERCIVAL, 1926; KAGAWA, 1928; VAVILOV & JAKUSHKINA, 1925.	
		28	EMME, 1924.	
„ <i>triuncialis</i> ssp. <i>brachyathera</i> BOISS.	14		SOROKINA, 1928.	
„ <i>triuncialis</i> ssp. <i>Kotschyi</i> BOISS.	14		„ „	
„ <i>triuncialis</i> ssp. <i>persica</i> (BOISS.) ZHUK.	14		„ „	
„ <i>triuncialis</i> ssp. <i>typica</i> ZHUK.	14		„ „	
Section <i>Cylindropyrum</i> (JAUB. et SP.) ZHUK.				
<i>Aegilops cylindrica</i>	7		PERCIVAL, 1923.	
	14		SAX & SAX, 1924; GAINES &	

¹⁾ This number was found in material from Angora as well as from Taurus.

GRAMINEAE (continued)	n	2n	
AEGILOPS (continued)			
			AASE, 1926; SAX, 1928, (1926) 1929.
<i>Aegilops cylindrica</i> Host. . . .	14	28	SCHIEHMANN, 1928a, b. AASE & POWERS, 1926; BLEIER 1928b.
		28	EMME, 1924.
„ <i>cylindrica</i> ssp. <i>aristulata</i> ZHUK.	14	28	KAGAWA, 1928.
Section <i>Vertebrata</i> ZHUK.			SOROKINA, 1928.
<i>Aegilops squarrosa</i> ¹⁾		28	KIHARA, 1924. AASE & POWERS, 1926.
	14		PERCIVAL, 1926.
„ <i>squarrosa</i> L.	7	28	EMME, 1924. KAGAWA, 1928.
„ <i>squarrosa</i> CAR.	14		
„ <i>squarrosa</i> ssp. <i>Meyeri</i> GRISEB.	7		SOROKINA, 1928.
„ <i>squarrosa</i> ssp. <i>typica</i> ZHUK.	7		„ „
Section <i>Conopyrum</i> (JAUB. et Sp.) ZHUK.			
<i>Aegilops caudata</i> L.	7		BLEIER, 1928b.
„ <i>caudata</i> ssp. <i>dichasians</i> ZHUK.	7		SOROKINA, 1928.
„ <i>caudata</i> var. <i>polyathera</i>		14	SCHIEHMANN, 1928a, b.
„ <i>comosa</i> SIBTH. et SM.	7		SOROKINA, 1928.
„ <i>comosavar. subventricosa</i> (= <i>A. Heldreichii</i>)		14	SCHIEHMANN, 1928a, b.
Section <i>Gastropyrum</i> (JAUB. et Sp.) ZHUK.			
<i>Aegilops ventricosa</i>	14		PERCIVAL, 1923; SCHIEHMANN, 1928a, b.
		28	KIHARA, 1924. BALLY, 1919.
„ <i>ventricosa</i> TAUSCH.	6		PERCIVAL, 1926; BLEIER, 1928b
	14	28	EMME, 1924. VAVILOV & JAKUSHKINA, 1925.
„ <i>ventricosa</i> COSS.	14		
„ <i>ventricosa sapocomosa</i> COSS.	14		SOROKINA, 1928.
Section <i>Sitopsis</i> (JAUB. et Sp.) ZHUK.			
<i>Aegilops Aucheri</i> ssp. <i>virgata</i> ZHUK.	7		SOROKINA, 1928.

¹⁾ PERCIVAL (1926) explains that *A. squarrosa* has been applied to *A. ventricosa* TAUSCH; *A. caudata* L., *A. cylindrica* Host., as well as to the Asiatic *A. squarrosa*.

GRAMINEAE (continued)	n	2n	
Aegilops (continued)			
<i>Aegilops bicornis</i> (FORSK.)			
JAUB et Sp.	7		SOROKINA, 1928.
" <i>longissima</i> (SCHW. et MUSCHL.) EIG.	7		" "
" <i>speltoides</i>		14	KAGAWA, 1926.
" <i>speltoides</i> TAUSCH.	7		PERCIVAL, 1926'
	7	14	KAGAWA, 1928.
" <i>speltoides</i> var. <i>ligustica</i> EIG.	7	14	SCHIEHMANN, 1928a, b.
" ssp. <i>ligustica</i> FIORI	7		SOROKINA, 1928.
" <i>speltoides</i> ssp. <i>submutica</i> ZHUK.	7		" "
" <i>speltoides</i> var. <i>typica</i> EIG. (= <i>Aucheri</i>)	7	14	SCHIEHMANN, 1928a, b.
Section Polyploides ZHUK.			
<i>Aegilops crassa</i> BOISS.		28	EMME, 1924.
	21		PERCIVAL, 1926.
" <i>crassa</i> ssp. <i>trivalis</i> ZHUK.	21		SOROKINA, 1928.
" <i>crassa</i> ssp. <i>Vavilovi</i> ZHUK.	ca. 21 ¹⁾		" "
" <i>turcomanica</i> ROSHEV	ca. 21		" "
Section (?)			
<i>Aegilops triticoides</i>		28	KIHARA, 1924.
" <i>triticoides</i> REG.		28	EMME, 1924.
" <i>uniaristata</i>	14		SCHIEHMANN, 1928a, b.
" <i>variabilis</i> EIG. ²⁾	14		SOROKINA, 1928.
" - „Bastardtyp” (<i>triuncialis</i> × <i>triaristata</i>)	14	28	SCHIEHMANN, 1928b.
<i>Aegilops</i> Hybrids:			
" <i>cylindrica</i> × <i>Triticum durum</i>	$\frac{35_1}{2}$		BLEIER, 1928b.
" <i>cylindrica</i> × <i>Triticum spelta</i>	$7 + \frac{21_1}{2}$		" "
" <i>cylindrica</i> × <i>Triticum vulgare</i> F ₂	$7 + \frac{21_1}{2}$		SAX (1926), 1929.
" <i>ovata</i> × <i>A. caudata</i> L.	$7 - 10 + \frac{7_1 - 1_1}{2}$		BLEIER, 1928b.

¹⁾ A satellite appeared in this species.

²⁾ Eight samples were investigated.

GRAMINEAE (continued)		n	2n	
AEGILOPS (continued)				
"	<i>ovata</i> × <i>Triticum dicoccum</i> F ₁	$\frac{28_1}{2}$		SAX, 1923.
"	<i>ovata</i> × <i>Triticum dicoccum</i> F ₂	14+14 ₁ , 21 ₁	" " "	
(<i>ovata</i> × <i>Triticum dicoccum</i> F ₁) × <i>Triticum dicoccum</i>	14+14 ₁	" " "	
"	<i>ovata</i> × <i>Triticum dicoccum</i> var. <i>Ajar</i> ¹⁾ . ca.	$\frac{7+21_1}{2}$	28	PERCIVAL, 1926.
<i>Aegilotriticum</i> (forma <i>fertilis</i> No. 1) - <i>Aegilops ovata</i> × <i>Triticum dicoccoides</i>				
"	(forma <i>fertilis</i> No. 2) - <i>Aegilops ovata</i> × <i>Triticum durum</i>	28 ²⁾	ca. 56	TSCHERNAK & BLEIER, 1926.
"	No. 1 × <i>Aegilotriticum</i> No. 2 (F ₃)	28	" " " "	
<i>Aegilops ovata</i> × <i>Triticum durum</i>				
"	<i>ovata</i> × <i>Triticum monococcum</i>	$\frac{28_1}{2}$		BLEIER, 1923b.
		or $\frac{21_1}{2}$	" "	
"	<i>ovata</i> × <i>Triticum vulgare</i> (Starling) ³⁾	$\frac{35_1}{2}$	35	PERCIVAL, 1926.
"	<i>ovata</i> × <i>Triticum vulgare</i> F ₁	$\frac{35_1}{2}$		BLEIER, 1923b.
"	<i>ovata</i> × <i>Triticum vulgare</i> F ₂	$\frac{20+6_1}{2}$	50	" "
"	<i>ovata</i> × <i>Triticum vil-</i>			

¹⁾ In these hybrids pairing of chromosomes was very loose in metaphase of the heterotypic division.

²⁾ This number was found in plants of F₂ and F₃ generations.

³⁾ In these hybrids pairing of chromosomes was very loose in metaphase of the heterotypic division.

GRAMINEAE (continued)		n	2n	
AEGILOPS (continued)				
<i>losum</i>		$\frac{21_1}{2}$		BLEIER, 1928b.
<i>Aegilops ovata</i> × (<i>Aegilops ovata</i> × <i>Triticum durum</i>)		$14 + \frac{14_1}{2}$		" "
" <i>ventricosa</i> × <i>Triticum villosum</i>		4+		" "
<i>Agropyrum repens</i>		21		STOLZE, 1925.
HORDEUM				
<i>Vulgare</i> Groups:				
<i>Hordeum Caput-Medusae</i> (L.)				
HACKEL		14		GRIFFEE, 1927.
" <i>deficiens</i>		14		" "
" <i>deficiens deficiens</i> . .		14		TANJI, 1925.
" <i>deficiens nudideficiens</i> .		14		" "
" <i>deficiens steudelii</i> . .		14		GRIFFEE, 1925.
" <i>deficiens tridax</i> . . .		14		TANJI, 1925.
" <i>distichon</i>	7			NAKAO, 1911.
" <i>distichon nigricans</i> .		14		TANJI, 1925.
" <i>distichon nigrilaxum</i> .		14		" "
" <i>distichon palmella</i> . .		14		" "
" <i>distichon</i> var. <i>Svanhals</i>		14		GRIFFEE, 1925.
" <i>distichum</i>		14		KIHARA, 1924
" <i>distichum</i> L. var. <i>erectum</i> SCHÜBL.	7			STOLZE, 1925.
" <i>distichum</i> L. var. <i>zeocrichum</i> L.		14		" "
" <i>intermedium</i>		14		GRIFFEE, 1927.
" <i>intermedium cornutum</i>		14		" 1925.
" <i>intermedium Laxtoni</i>		14		TANJI, 1925.
" <i>intermedium mortoni</i>		14		" "
" <i>maritimum</i>		14		" "
" <i>maritimum</i> WITH. . .		14		GRIFFEE, 1927.
" <i>spontaneum</i>	7	14		V. UBISCH. 1921.
" <i>spontaneum</i> C. KOCH.	7	14		TANJI, 1925; GRIFFEE, 1927.
" <i>spontaneum</i> ¹⁾	7	14		STOLZE, 1925. .
" <i>vulgare</i> ¹⁾	7	14		AASE & POWERS, 1926.
				V. UBISCH, 1921; KIHARA, 1924; GRIFFEE, 1927.

¹⁾ For list of varieties of *Hordeum vulgare* given by TANJI, 1925, and EMME, 1925, see previous list (GAISER, 1926). Thirty-nine varieties have a diploid number of 14.

GRAMINEAE (continued)	n	2n	
<i>Hordeum</i> (continued)			
<i>Hordeum vulgare</i> var. <i>Manchuria</i>		14	GRIFFEE, 1925.
" <i>vulgare</i> L. var. <i>Winter Club</i>	7		AASE & POWERS, 1926.
<i>Jubatum</i> Group:			
<i>Hordeum jubatum</i>		ca. 14	TANJI, 1925.
" <i>jubatum</i> L.		14	AASE & POWERS, 1926.
	14	28	GRIFFEE, 1927.
" <i>murinum</i>		14	TANJI, 1925.
" <i>murinum</i> L.	7	14	STOLZE, 1925.
	14		AASE & POWERS, 1926.
			GRIFFEE, 1927.
<i>Nodosum</i> Group:			
<i>Hordeum nodosum</i>		14	TANJI, 1925.
" <i>nodosum</i> L.	21	42	GRIFFEE, 1927.
CYPERACEAE			
ERIOPHORUM ¹⁾			
Section <i>Vaginata</i> .			
<i>Eriophorum vaginatum</i> L. . .	29		HÅKANSSON, 1923.
Section <i>Phyllanthella</i>			
<i>Eriophorum polystachyum</i> L. .	29	" "	
SCIRPUS ¹⁾			
Section <i>Taphrogeton</i>			
<i>Scirpus radicans</i> SCHKUHR. . .	28	" "	
" <i>silvaticus</i> L.	31	" "	
Section <i>Bulboschoenus</i>			
<i>Scirpus maritimus</i> L.	52	" "	
Section <i>Schoenoplectus</i>			
<i>Scirpus lacustris</i> L.	21	" "	
" <i>Tabernaemontani</i> GMEL	21	" "	
Section <i>Blysmus</i>			
<i>Scirpus compressus</i> (L.) PERS..	22	" "	
Section <i>Isolepis</i>			
<i>Scirpus setaceus</i> L.	13.		HÅKANSSON, 1923.
Section <i>Heleocharis</i>			
<i>Scirpus multicaulis</i> SM. . . .	10	" "	
" <i>paluster</i> L.	8		PIECH, 1924, 1923a, b.
" <i>palustris</i> L.	19		HÅKANSSON, 1923.
" <i>uniglumis</i> LINK.	23	" "	
	16		PIECH, 1923a, b.
Section (?)			
<i>Scirpus acutus</i> MUHL. f. <i>conden-</i>			
<i>satus</i> (FARWELL) FERN	20		HICKS, 1928.

¹⁾ Classification under sections is according to KÜKENTHAL (1909).

CYPERACEAE (continued)	n	2n	
<i>Scirpus</i> (continued)			
<i>Scirpus americanus</i> PERS. . .	38		HICKS, 1928.
" <i>americanus</i> PERS. (irregular form)	50-64	" "	
" <i>atrocinctus</i> FERN. . .	34	" "	
" <i>atrovirens</i> MUHL. . .	25-30	" "	
" <i>campestris</i> BRITTON			
var. <i>fernaldi</i> (BICKNELL) BARTLETT . .	ca. 55	" "	
" <i>campestris</i> var. <i>paludosus</i> (A. NELSON) FERN	55-57	" "	
" <i>cyperinus</i> (L.) KUNTH			
var. <i>pelius</i> FERN . .	33	" "	
" <i>gluviatilis</i> (TOIR.) GRAY	55	" "	
" <i>georgianus</i> HARPER (S. <i>atrovirens</i> MUHL. var. <i>georgianus</i> (HARPER) FERN.)	28	" "	
" <i>heterochaetus</i> CHASE .	18	" "	
" <i>longii</i> FERN.	34	" "	
" <i>olneyi</i> GRAY	39	" "	
" <i>robustus</i> PURSH. . . .	53-55	" "	
" <i>rubrotinctus</i> FERN. . .	33	" "	
" <i>validus</i> VOHL.	21	" "	
CAREX ¹⁾			
Subgenus <i>Primocarex</i>			
Section <i>Microcephalae</i>			
<i>Carex capitata</i> SOLAND . . .	25		HEILBORN, 1928a.
Subgenus <i>Vignea</i>			
Section <i>Stenorhynchae</i>			
<i>Carex conferta</i> HOCHST. . . .	26	"	1928a
" <i>crus-corvi</i> SHUTTL. . . .	26	"	"
Section <i>Tenuiflorae</i>			
<i>Carex tenuiflora</i> WAHLENB. . .	31 ²⁾	"	"
Section <i>Elongatae</i>			
<i>Carex remota</i> L.	31	"	"
Subgenus <i>Eucarex</i>			
Section <i>Acutae</i>			
Subsection <i>Cryptocarpae</i>			
<i>Carex salina</i> WAHLENB. var. <i>Kategatensis</i> (FR.) ALMQ. . .	42 ³⁾	"	"

¹⁾ Classification under sections is according to KÜKENTHAL, 1909.

²⁾ It is possible that 32 is the correct number.

³⁾ It is possible that 42 is the correct number.

CYPERACEAE (continued)	n	2n	
Section <i>Limosae</i>			
<i>Carex magellanica</i> LAM. . . .	29		HEILBORN, 1923a.
Section <i>Frigidae</i>			
Subsection <i>Fuliginosae</i>			
<i>Carex atrofusca</i> SCHKUHR. . .	18		" "
Section <i>Hymenochloenae</i>			
Subsection <i>Longirostres</i>			
<i>Carex silvatica</i>	29		" "
Section <i>Spirostachyae</i>			
<i>Carex pulchella</i> LÖNNR. . . .	35		" "
Section <i>Physocarpae</i>			
Subsection <i>Vesicariae</i>			
<i>Carex lacinirostris</i> FR.	41		" "
" <i>saxatilis</i> L. probably	40 (41?)		" "
Section (?)			
<i>Carex aquatilis</i> ca. 37			STOUT, 1913.
	> 40		VUCKOVIC, 1923.
" <i>Hornschuchiana</i> × <i>Oederi</i>	34-40 ¹⁾		HEILBORN, 1923a.

PRINCIPES

PALMAE

<i>Phoenix dactylifera</i>	28	NĚMEC, 1910a.
<i>Trachycarpus excelsus</i> WENDL.		
var. <i>Fortunei</i> MAK.	18 ²⁾	SINOTO 1923a.
<i>Pritchardia filamentosa</i>	24	NĚMEC, 1910a.
<i>Chamaedorea corallina</i> KARST..	12-14	SÖDERBERG, 1919.
" <i>glaucophylla</i>	13	SÜSSENGUTH, 1920.
" <i>Karwinskiana</i>	26	" 1921.
" <i>Sartorii</i>	6-7	" 1920.
<i>Cocos nucifera</i> LINN.. . . .	16	SANTOS, 1923.
<i>Nipa fruticans</i>	8	RADERMACHER, 1925.

SPATHIFLORAE

ARACEAE

ANTHURIUM³⁾Section I. *Tetraspermium*

SCHOTT.

Anthurium scandens (AUBL.)

ENGL. 24 48 GAISER, 1927

¹⁾ In most cases 5-8 diminutive (univalent) chromosomes were counted among these, though there may have been as many as 16 univalents.

²⁾ A pair of unequal chromosomes was distinguishable.

³⁾ The following species are classified under sections according to ENGLER & PRANTL.

ARACEAE (continued)	n	2n		
ANTHURIUM (continued)				
<i>Anthurium violaceum</i> var <i>leuco</i>				
<i>carpum</i>	16		CAMPBELL, 1905.	
Section II. <i>Gymnopodium</i>				
ENGL.				
<i>Anthurium gymnopus</i> GRISEB.		ca. 30	GAISER, 1927.	
Section III. <i>Porphyrochitonium</i> SCHOTT.				
<i>Anthurium Scherzerianum</i>				
SCHOTT (var. <i>grandiflorum</i>)	ca. 15	ca. 30	GAISER, 1927.	
	16	30-32	HAASE-BESSEL, 1925	
Section IV. <i>Pachyneurium</i>				
SCHOTT				
<i>Anthurium acaule</i> (JACQ.)				
SCHOTT	15	30	GAISER, 1927.	
" <i>recusatum</i> SCHOTT	ca. 15	ca. 30	" "	
" <i>Hookeri</i> KUNTH	ca. 15	ca. 30	" "	
" <i>crassinervium</i> (JACQ.)				
SCHOTT	ca. 30	ca. 60	" "	
" <i>tetragonum</i> (HOOK.)				
SCHOTT	15	30	" "	
" <i>maximum</i> (DESF.)				
ENGL.	ca. 15	ca. 30	" "	
" <i>hacumense</i> ENGL.		ca. 30	" "	
" <i>grandifolium</i> (JACQ.)				
KUNTH		ca. 30	" "	
" <i>cordatum</i> (WILLD.)				
G. DON.		ca. 30	" "	
" <i>Brownii</i> MAST.		ca. 30	" "	
Section VI. <i>Leptanthurium</i> SCHOTT				
<i>Anthurium gracile</i> LINDL.	15	ca. 30	" "	
" <i>acutangulum</i> ENGL.	ca. 15	ca. 30	" "	
Section VIII. <i>Xialophyllum</i> SCHOTT				
<i>Anthurium Tuerckheimii</i> ENGL.		ca. 30	" "	
Section IX. <i>Polyneurium</i>				
ENGL.				
<i>Anthurium Wallisii</i> MAST.		ca. 60	" "	
Section X. <i>Urospadix</i> ENGL.				
<i>Anthurium contum</i> SCHOTT	15	ca. 30	" "	
" <i>littorale</i> ENGL.	15	ca. 30	" "	
" <i>Beyrichianum</i>				
ENGL.	ca. 15		" "	

ARACEAE (continued)	n	2n	
ANTHURIUM (continued)			
<i>Anthurium Olfersianum</i> KUNTH.	ca. 15	ca. 30	GAISER, 1927.
Section XI. Episeiostenium SCHOTT.			
<i>Anthurium Bakeri</i> Hook. . .		ca. 30	GAISER, 1927.
" <i>Dominicense</i>			
SCHOTT.	ca. 15	ca. 30	" "
" <i>Guildingii</i> SCHOTT.	ca. 15	ca. 30	" "
Section XIII. Cardiolochium SCHOTT			
<i>Anthurium magnificum</i> LIND. .	ca. 15	ca. 30	GAISER, 1927.
" <i>magnificum</i>	16	30-32	HAASE-BESSELL, 1923
" <i>crystallinum</i> LIND.	ca. 15	ca. 30	GAISER, 1927.
" <i>Warocqueanum</i> J. MOORE		ca. 30	" "
Section XIV. Chamaerapium SCHOTT.			
<i>Anthurium radicans</i> C. KOCH .		± 50	GAISER, 1927.
Section XV. Calomystrium SCHOTT.			
<i>Anthurium nymphaeifolium</i> C. KOCK et BOUCHE.		ca. 30	GAISER, 1927.
" <i>Veitchii</i> MAST.	15	ca. 30	" "
Section XVI. Belolochium SCHOTT emend ENGL.			
<i>Anthurium Andreanum</i> LIND. .	ca. 15	ca. 30	GAISER, 1927.
" <i>Andreanum</i> ¹⁾	16	30-32	HAASE-BESSELL, 1928.
<i>Anthurium denudatum</i> ENGL.	ca. 15	ca. 30	GAISER, 1927.
Section XVII. Semaeophyllium SCHOTT			
<i>Anthurium subsignatum</i>			
SCHOTT.		ca. 30	GAISER, 1927.
Section XVIII. Schizopla-cium SCHOTT			
<i>Anthurium pedato-radiatum</i>			
SCHOTT.	ca. 15	ca. 30	GAISER, 1927.
" <i>digitatum</i> (JACQ.) G. DON.			
" <i>undatum</i> SCHOTT.		ca. 30	" "
" <i>variabile</i> KUNTH.	15	ca. 30	" "
Hybrids:			
<i>Anthurium Chelseiense</i> N. E. BROWN	ca. 15	ca. 30	" "

¹⁾ The *Andreanum* type used was probably a hybrid with *A. nymphaearum* (HAASE-BESSELL, 1928).

ARACEAE (continued)	n	2n	
ANTHURIUM (continued)				
Hybrids (continued)				
<i>Anthurium ferrierense</i> BERG-				
MAN			ca. 30	GAISER, 1927.
" <i>Froebelii</i> HORT. . .	ca. 15		ca. 30	" "
" " <i>gloriosum</i> " from				
Mr. FISHER) . .	ca. 15			
" <i>roseum</i> HORT (pro-				" "
bably <i>A. Andreanum</i>				
<i>roseum</i>) . .			ca. 30	" "
Unidentified <i>Anthurium</i> seed-				
ling from Dept. of Parks (New				
York City)			ca. 30	" "
<i>Spathiphyllum Patinii</i>	9			JÜSSEN, 1928.
<i>Symplocarpus foetidus</i>	8			GOW, 1907.
<i>Aglaonema versicolor</i>	8			" 1908.
<i>Diffenbachia daraguiniana</i> . .	8			" "
<i>Zantedeschia aethiopica</i>	16			OVERTON, J. B., 1909.
<i>Richardia africana</i> Kth.	12			MICHELL, 1916.
<i>Pentandra undulata</i>	ca. 22			DUGGAR, 1900.
<i>Xanthosoma spec.</i>	16			GOW, 1913.
<i>Arum maculatum</i>			ca. 32	SCHMUCKER, 1925.
<i>Arisaema serratum</i> var. <i>Thun-</i>				
<i>bergii</i> f. BLUMEI			26	(YAMAKAWA, 1916) given by
				ISHIKAWA, 1916.
<i>Arisaema triphyllum</i>	16			ATKINSON, 1899.
FARINOSAE				
XYRIDACEAE				
<i>Xyris indica</i> L.	16			WEINZIEHER, 1914.
COMMELINACEAE				
<i>Tradescantia fluminensis</i> . . .	12(?)			TISCHLER, 1921-22.
" <i>subaspera</i> (= <i>T.</i>				
<i>virginica</i>) . . .	10-12			STRASBURGER, 1882.
	12			" 1888
" <i>virginica</i>	12			STRASBURGER, 1904b; MIYAKE,
				1905; BELLING, 1927a; SHA-
				DOWSKY, 1927.
	12-16	23-26		FARMER & SHOVE, 1905.
	12,			
	11+1 ₁			NAWASCHIN, S., 1911.
		24		BELLING, 1927d.
<i>Rhoeo discolor</i> HANCE	4-8			GALLAGHER, 1908.
" <i>discolor</i>	6			SÜSSENGUTH, 1920; TISCHLER,
				1921-22.

COMMELINACEAE (continued)

Rhoeo (continued)

6	12	SUSSENGUTH, 1921.
	12	BELLING, 1925, 1927 <i>d</i> .
12 ₁	"	given by DAVENPORT 1927.
		HANCE, 1915.

Zebrina pendula SCHNIZ. . . . 12-15

PONTEDERIACEAE

Pontederia cordata 8 15-16 SMITH, R. W. 1893.*Eichornia crassipes* 16 ca. 30 " " " "" *speciosa* KUNTH (= *E. crassipes*) ca. 32 TAYLOR, 1925*c*.

PHILYDRACEAE

Philydrum lanuginosum 6 (WINKLER 1921) given by
TISCHLER, 1921-22).

LILIIFLORAE

JUNCACEAE

Oxychloe andina eca. 8 BRENNER, 1922.*Juncus bufonius* ¹⁾ 8-10 " "" *compressus* ¹⁾ 8-10 " "" *filiformis* ¹⁾ 8-10 " "" *lamprocarpus* ¹⁾ 8-10 " "" *squarrosus* 8-10 " "*Luzula campestris* ²⁾ 9 " "" *multiflora* 9 " "" *nivea* 9 " "

MELANTHACEAE

Veratrum album 16 STENAR, 1923.

LILIACEAE

Tofieldia calyculata (L.) WAH-

LENB 12 SEELIEB, 1924.

Heloniopsis breviscapa 34 (MIYAJI, 1916) given by ISHI-
KAWA, 1916.17 ³⁾ ONO, 1926*b*.*Tricyrtis formosana* 26 NAWA, 1928." *hirta* 6 IKEDA, 1902.

12-13 ISHIKAWA, 1916.

13 26 NAWA, 1928.

" *hirta* HOOK. 6 IKEDA, 1902." *macropoda* 26 NAWA, 1928." *stolonifera* 26 " "¹⁾ The chromosome numbers of these species were not definitely determined.²⁾ 12 and 14 chromosomes were frequently observed.³⁾ 51 chromosomes were counted also in nuclear divisions in the endosperm (ONO, 1926*b*).

LILIACEAE (continued)	n	2n	
<i>Tricyrtus</i> (continued)			
<i>Tricyrtus hirta</i> × <i>formosana</i>	7-8		NAWA, 1928.
„ <i>hirta</i> × <i>stolonifera</i> ,	7-8		„ „
<i>Colchicum autumnale</i> L.	(10)-12		HEIMANN-WINAWER, 1919.
<i>Asphodelus albus</i>	13 ¹⁾		SUSSENGUTH, 1921.
<i>Asphodeline lutea</i>		14	„ 1920.
<i>Paradisea Liliastrum</i>	16		STENAR, 1928.
<i>Bulbine annua</i> WILLD.		26	MÜLLER, C. 1912.
<i>Anthericum roseum</i>	16		STENAR, 1928.
<i>Chlorophytum Sternbergianum</i>	12		STRASBURGER, 1888.
	6		SUSSENGUTH, 1920.
<i>Hosta ovata</i>	> 16		SYKES, 1908a.
		probably	
		48	„ 1908b.
„ <i>coerulea</i> (= <i>Funkia</i>			
<i>ovata</i>)	12		BELLING, 1927c.
<i>Funkia Sieboldiana</i>	> 16		SYKES, 1908a.
		probably	
		48	„ 1908b.
	24		MIYAKE, 1905.
<i>Hosta Sieboldiana</i> LODD.	24		STRASBURGER, 1882, 1900;
			INARIYAMA, 1928.
<i>Funkia</i> (<i>Hosta</i>) <i>Sieboldiana</i>			
Hook.	24		STRASBURGER, 1905b.
<i>Hemerocallis citrina</i>		24	TIMM, 1928.
„ <i>fulva</i> L.	ca. 12		STRASBURGER, 1882.
	16		TISCHLER, 1915.
	18		JUEL, 1897.
	24		SCHÜRHOFF, 1926.
„ <i>fulva</i>	33		BELLING, 1925c.
	$\frac{2}{2}$		
	12 ²⁾		TIMM, 1928.
<i>Kniphofia aloides</i>	6		BELLING, 1928c.
„ (<i>Tritoma</i>) <i>Pfitzeri</i>			
Hort.	6		DE VILMORIN & SIMONET, 1927b
<i>Aloe abyssinica</i>	7	14	FERGUSON, N., 1926.
„ <i>arborescens</i> MILL.	7		TAYLOR, 1925b.
„ <i>arborescens</i>		14	FERGUSON, N., 1926.
„ <i>arborescens Natalensis</i>	7	14	„ „ „
„ <i>Cameronii</i>	7		„ „ „
„ <i>ciliaris</i>		> 45	„ „ „

¹⁾ Judged by Figure 21, page 324, SUSSENGUTH, 1921.

²⁾ Irregular division gave rise to many small supernumerary nuclei.

LILIACEAE (continued)	n	2n	
<i>Aloe</i> (continued)			
<i>Aloe cristata</i>	7		FERGUSON, N., 1926.
" <i>grandis</i>	7		" " "
" <i>Hamburyana</i> NAUD. (<i>A.</i> <i>striata</i> HAW.)		14	MÜLLER, C., 1912.
" <i>pluridens</i>	7	14	FERGUSON, N., 1926.
" <i>purpurascens</i>	7 ¹⁾		BELLING, 1923c.
<i>Gasteria apricoides</i>		ca. 14	FERGUSON, N., 1926.
" <i>cheilophylla</i> BAKER	7	14	TAYLOR, 1924.
" <i>cheilophylla</i>	7		FERGUSON, N., 1926.
" <i>Cooperi</i>	7		" " "
" <i>croucheri spatulata</i>	7		" " "
" <i>excelsa</i>	7		" " "
" <i>excelsa</i>	7		" " "
" <i>Holtzei</i>	7		" " "
" <i>lingua</i>	7		" " "
" <i>lingua</i> var. <i>conspurcata</i>	7		" " "
" <i>nigricans platyphylla</i>	7		" " "
" <i>nigricans crassifolia</i>		28	" " "
" <i>retata</i>	7		" " "
" <i>rotata</i>	7	14	" " "
<i>Apicra aspera</i>	7		" " "
" <i>deltoidea</i>	7	14	" " "
" <i>pentagona spiralis</i>	14		" " "
<i>Haworthia Cooperi</i>	7		" " "
" <i>cymbiformis</i> HAW. var. <i>obtusata</i> BAKER.	7	14	TAYLOR, 1925b.
" <i>cymbiformis</i>	7		FERGUSON, N., 1926.
" <i>glabrata</i>	7		" " "
" <i>glabra pervivida</i>	7		" " "
" <i>hybrida</i>	7		" " "
" <i>laevis</i>	7		" " "
" <i>pseudotortuosa</i>	14		" " "
" <i>radula</i>	7		" " "
" <i>recurva</i>	7		" " "
" <i>rigida</i>		14	" " "
" <i>subfasciata</i>		28(?)	" " "
" <i>tesselata</i> (WM. HORTON) 2 bars.		14	" " "
" <i>tesselata</i> (WM. HORTON) 4 bars		23	" " "
" <i>tesselata</i> KEW		23	" " "
" <i>tesselata parva</i> KEW.	14		" " "

¹⁾ From Fig. 2, page 339 (BELLING, 1923c).

LILIACEAE (continued)	n	2n	
<i>Agapanthus umbellatus</i>	15		BELLING, 1928c.
<i>Gagea lutea</i>	36 ¹⁾		SAKAMURA & STOW, 1926—7.
„ <i>lutea</i> KER.		16	STENAR, 1927b.
<i>Allium ascalonicum</i>	8		HIRATA & AKIHAMA, 1927.
„ <i>baicalense</i>	8		„ „ „ „
„ <i>baiselense</i>	8		„ „ „ „
„ <i>Bakeri</i> BEGEL.		16	KATAYAMA, 1928.
„ <i>cepa</i>		16	NEMEC, 1898a ²⁾ , 1910; LUNDEGARDH, 1910, 1912a; GRÉGOIRE, 1906, 1912; v. SCHUSTOW, 1913.
	8		MIYAKE, 1905, TAYLOR, 1925a
	8	16	REED, 1914.
	16		MODILEWSKI, 1928a.
		30+	MERRIMAN, 1904.
		24	BONNEVIE, 1908.
		10 ₄ ³⁾	MÜHLMANN, 1926.
„ <i>cepa</i> L.		16	SCHAFFNER, 1898; DE HORNE 1911 ⁴⁾ , TAYLOR, 1926.
„ <i>cernuum</i> ROTH.	8		MOTTIER & NOTHNAGEL, 1913.
„ <i>fistulosum</i>	8		STRASBURGER, 1888; HIRATA & AKIHAMA, 1927.
„ <i>fistulosum</i> L.	8		ISHIKAWA, 1897.
„ <i>fistulosum</i> L. (NISSATO)	8		KATAYAMA, 1928.
„ <i>fistulosum</i> var. <i>caespitosum</i>	8		HIRATA & AKIHAMA, 1917.
„ <i>Ledibourianum</i>	8		HIRATA & AKIHAMA, 1927.
„ <i>middendorffianum</i>	16		„ „ „ „
„ <i>moly</i>	7		MIYAKE, 1905.
„ <i>narcissiflorum</i>	8		HIRATA & AKIHAMA, 1927.
„ <i>nipponicum</i> FRANCH. et SAV.	8		KATAYAMA, 1928.
„ <i>odorum</i> L.	8		SCHÜRHOFF, 1922; HABERLANDT, 1925.
		16	HABERLANDT, 1922 ⁵⁾ , 1923.
	8	16	KATAYAMA, 1928.

¹⁾ It was possible to produce pollen grains with varying numbers of chromosomes by changing the temperature.

²⁾ NEMEC (1898a) found 8 instead of 16 chromosomes in some older cells of the epidermis. In 1910 NEMEC reported finding syndiploid nuclei in tips from wounded roots.

³⁾ These tetrads (10) appeared after treatment with pilocarpin solution.

⁴⁾ DE HORNE (1911) considered 8 to be the diploid number, though he saw 16 chromosomes.

⁵⁾ HABERLANDT (1922) determined this number in the cells of the embryo.

LILIACEAE (continued)	n	2n	
<i>Allium</i> (continued)			
	16	ca. 32	MODILEWSKI, 1925.
	16	32	" 1928a ¹⁾ .
<i>Allium ophioscorodon</i> G. DON.	14-16	ca. 32	" "
" <i>sativum</i>	8	16	DE TOLEDA PIZA, 1928.
" <i>Scorodoprasum</i> L. var.			
<i>viviparum</i> REGEL.		16	KATAYAMA, 1923.
" <i>stellerianum</i>	8		HIRATA & AKIHAMA, 1927.
" <i>triccoccum</i>	8		NOTHNAGEL, 1916.
" <i>ursinum</i> L.	8		GUIGNARD, 1884, 1885.
" <i>ursinum</i>	7		CHODAT, 1923a, 1925b.
" <i>victoriale</i>	8		MIYAKE, 1905.
" <i>victorialis</i>	16		HIRATA & AKIHAMA, 1927.
" sp. (?)	8		GUIGNARD, 1889.
<i>Triteleia</i> sp. (?)		10-12	MÜLLER, C., 1912.
<i>Lilium auratum</i>	12		BELLING, 1923a.
" <i>bulbiferum</i>	12		STRASBURGER, 1888, 1893.
" <i>canadense</i> L.	12		ALLEN, C., 1904, 1905a, b.
" <i>candidum</i>	12		GUIGNARD, 1891b; FARMER 1895b; MIYAKE, 1905; BEL- LING, 1923a.
" <i>candidum</i> L.	12		STRASBURGER, 1882; GUIG- NARD, 1884; BELAJEFF, 1894.
		23 ²⁾	NĚMEC, 1910.
" <i>chalconicum</i>	12		GUIGNARD, 1885.
" <i>cordifolium</i>	12		TAKAMINE, 1916.
" <i>croceum</i>	12		STRASBURGER, 1882; GUIG- NARD, 1891b.
" <i>longiflorum</i>	8, 10 & 12 16 ³⁾ , 18, 20, 22, 24		DIXON, 1895.
	12		YAMANOUCHI, 1901; BELLING, . 1926, 1927c, 1928a, b, c. BELLING, given by DAVENPORT 1927.
" <i>martagon</i>	12		GUIGNARD, 1889, 1891a; FAR- MER, 1893, 1895a, b; FARMER & MOORE, 1896; SARGANT, 1896, 1897; STRASBURGER, 1908; NAWASCHIN, S., 1910; HEIMANS, 1923.

¹⁾ Plants from München, Brno and Kopenhagen were examined.

²⁾ Syndiploid nuclei with 48 chromosomes were found in root-tips treated with chloral hydrate.

³⁾ Dixon (1895) found 16 to be the most frequent number.

LILIACEAE (continued)	n	2n	
<i>Lilium</i> (continued)			
	8, 10		OVERTON, 1891.
	12	24	OVERTON, 1893a.
<i>Lilium martagon</i> L.	12		GUIGNARD, 1884; MIYAKE, 1905
	12	24	GUIGNARD, 1891b.
„ <i>pardalinum</i>	12		BELLING, 1928b, c.
„ <i>philadelphicum</i>	12		SCHAFFNER, 1897.
„ <i>pyrenaicum</i> GOUAN	12		NEWTON, 1926.
„ <i>regale</i>	12		BELLING, 1926, 1927c, 1928a, c.
„ <i>speciosum</i>	12		FARMER, 1895b; GREGOIRE, 1912; BELLING, 1928a.
„ <i>superbum</i>	12		GUIGNARD, 1885.
„ <i>superbum</i> L.	12		CHIPMAN, 1925.
„ <i>tenuifolium</i> FISCH.	12		NEWTON, 1926.
„ <i>tigrinum</i>	12		FARMER, 1895b; CHAMBERLAIN, 1897; SCHAFFNER, 1906; BELLING, 1928a.
<i>Fritillaria imperialis</i>	8		STRASBURGER, 1888.
		> 24	STRASBURGER, 1882.
		ca. 24	VAN WISSELINGH, 1899.
„ <i>imperialis</i> L.		24	LENOIR, 1923; TAYLOR, 1926.
„ <i>meleagris</i>	12		GUIGNARD, 1891b.
„ <i>meleagris</i> L.	12		BELAJEFF, 1894.
	12	24	NEWTON, 1926.
„ <i>persica</i> L.	12		STRASBURGER, 1882, 1888.
„ <i>pudica</i> SPRENG.	12	24 ¹⁾	SAX, 1918.
<i>Erythronium albidum</i>	12		SCHAFFNER, 1901.
„ <i>Americanum</i>	12		SCHAFFNER, 1901.
<i>Lloydia serotina</i>		24	NEWTON, 1926.
TULIPA ²⁾			
Section <i>Leiostemones</i>			
<i>Tulipa armena</i> BOISS.		24	NEWTON, 1926.
„ <i>Batalini</i> REGEL.		24	„ „
„ <i>chrysantha</i> BOISS.	24	46	„ „
„ <i>clusiana</i> DC.	$24 + \frac{12}{2}$	ca. 60	„ „
„ <i>Eichleri</i> REGEL.		24	„ „
„ <i>galatica</i> FREYN.		32	„ „
„ <i>Greigii</i> REGEL.		24	„ „
„ <i>Kauffmanniana</i> REGEL	12	24	„ „
<i>Lilium Kolpakowskiana</i> REGEL	12	24	„ „
„ <i>linifolia</i> REGEL.	12	24	„ „

¹⁾ This number was obtained in the first division of the fertilized egg cell.²⁾ Classification under sections is according to ENGLER and PRANTL.

LILIACEAE (continued)	n	2n	
TULIPA (continued)			
<i>Lilium maximowiczii</i> REGEL. .	12	24	NEWTON 1926.
" <i>praestans</i> HOOG. . . .	12	24	"
" <i>sprengeri</i> BAKER		24	"
" <i>stellata</i> HOOKER		48	"
" <i>viridiflora</i> BAKER. . . .	12	24	"
" sp.(?) Copper Color)			
(hort.)		24	"
" sp. (?) Duc van Thol.			
(hort.) ¹⁾	12	24	" "
" sp. (?) Keiserkron (hort.)		36	" "
" sp. (?) Massenet (hort.)		36	" "
" sp. (?) Murillo (hort.) .	12	24	" "
Section <i>Eriostemon</i> es			
<i>Tulipa celsiana</i> (= <i>australis</i>) .	12		GUIGNARD, 1900.
" <i>australis</i> LINK.	12	24	NEWTON, 1926.
" <i>biflora</i> PALL.		24	" "
" <i>daystemon</i> REGEL. . . .	12	24	" "
" <i>Hageri</i> HELDR.	12	24	" "
" <i>humilis</i> HERBERT. . . .	12	24	" "
" <i>orphanidea</i> BOISS. . . .	12	24	" "
" <i>primulina</i> BAKER. . . .	12	24	" "
" <i>pulchella</i> FENZL. . . .		24	" "
" <i>silvestris</i>	12		GUIGNARD, 1900.
" <i>silvestris</i> L.		ca. 48	DE MOL, 1925.
	24	48	NEWTON, 1926.
" <i>turkestanica</i> REGEL. . .		24	" "
" <i>whittalli</i> ELWES	24	48	" "
Section (?) ²⁾			
<i>Tulipa Gesneriana</i>	12		SCHNIEWIND-THIES, 1901.
" <i>Gesneriana</i> L.	12		ERNST, 1901.
" <i>Gesneriana</i> cult. hort. .		24	HEITZ, 1926.
" <i>Gesneriana</i> var. <i>Breedertulip</i>		24	DE MOL, 1925.
" <i>Gesneriana</i> var. <i>Breedertulip</i> <i>Goliath</i>		ca. 36	" " "
" <i>Gesneriana</i> var. <i>Darwin</i>		24	" " "
" <i>Gesneriana</i> var. <i>La Candeur</i>		24	" " "
" <i>Gesneriana</i> var. <i>La Reine</i> ³⁾		24	" " "

¹⁾ See also *Tulipa suaveolens*. According to DE MOL (1928c) "Duc van Thol" tulips are *T. suaveolens*.

²⁾ The following species were not classified under sections.

³⁾ More than 50 bud variations were unaccompanied by any change in chromosome number.

LILIACEAE (continued)		n	2n	
<i>Tulipa</i> (continued)				
<i>Tulipa Gesneriana</i> var. <i>Murillo</i> ¹⁾			24	DE MOL, 1925, 1926a, 1927c.
			23	" " 1927c.
" <i>Gesneriana</i> var. <i>Pink Beauty</i>			36	" " " 1928b.
" <i>Gesneriana</i> var. <i>Proserpine</i>			24	" " "
" <i>Gesneriana</i> var. <i>Tourne-sol</i>			24	" " "
" <i>Gesneriana</i> var. <i>White Duc</i>			24	" " "
" <i>odoratissima</i> (<i>Duc van Thol</i> single)			24	" " 1928c.
" <i>suaveolens</i> (<i>Duc van Thol Tulips</i> ²⁾)			24	" " "
" <i>suaveolens</i> (<i>Scarlet Duc maxima</i>	12, 24		"	" " "
" <i>suaveolens</i> (<i>White Duc maxima</i>)	12, 24		"	" " "
" <i>suaveolens</i> ROTH. var. <i>Duc van Thol Scarlet</i> .	12	24	"	" " 1928d.
	24	48	"	" " "
<i>Albuca fastigiata</i> (?)			54	MÜLLER, C., 1912.
CALOCHORTUS ³⁾				
Section <i>Macrodenus</i>				
<i>Calochortus albus</i> DOUGL.	10	20		NEWTON, 1926.
" <i>amabilis</i> PURDY	10	20	"	"
" <i>Benthami</i> BAKER	10	20	"	"
" <i>maweanus</i> LEICHTL.		20	"	"
Section <i>Mariposa</i>				
<i>Calochortus Catalinae</i> WATSON	7	14	"	"
" <i>clavatus</i> S. WATS.		16	"	"
" <i>lutea</i> DOUGLAS		14	"	"
" <i>Plummerae</i> GREENE		18	"	"
" <i>venusta</i> BENTH. var. <i>Eldorado</i>	7	14	"	"
" <i>vesta</i> PURDY	14	28		NEWTON, 1926.

¹⁾ More than 40 bud variations were unaccompanied by any change in chromosome number. (DE MOL, 1926a).

²⁾ Ten different color varieties were examined: scarlet, white, maxima, cochineal, rose, yellow, orange, variegated, violet-white, and double (reddish-brown).

³⁾ Classification under sections is according to ENGLER & PRANTL. NEWTON (1926) found satellites were present throughout this genus.

LILIACEAE (continued)	n	2n	
<i>Urginea maritima</i>		20	HEITZ, 1926.
		40	HEITZ, 1926.
<i>Galtonia candicans</i>	8		SCHNIEWIND-THIES, 1901; STRASBURGER, 1904c, 1905b, 1910a; MIYAKE, 1905; DIG- BY, 1910.
	8	16	DIGBY, 1910.
		16	GREGOIRE, 1912; SUSSEN- GUTH ¹⁾ , 1921;
" <i>candicans</i> DCNE.		16	MÜLLER, C., 1912; NEWTON, 1924.
" <i>candicans</i> (BAKER) DCNE.	12		STRASBURGER, 1905b.
" <i>candicans</i> DES.		16	KIEHN, 1917; NAWASCHIN, S., 1927.
" <i>princeps</i> DCNE		16	NEWTON, 1924.
<i>Scilla autumnalis</i>		24-(28)	HEITZ, 1926.
" <i>bifolia</i> L.		20	MÜLLER, C., 1912.
" <i>campanulata</i>	8		McKENNEY, 1898.
		16	HEITZ, 1926.
" <i>cilica</i>		12	HEITZ, 1926.
" <i>hyacinthoides</i> var. <i>coerulea</i>	8		McKENNEY, 1898.
" <i>japonica</i> BAK.		16	SHIMOTOMAI, 1927.
" <i>non scripta</i>	8	16	VERTON, E., 1893a ²⁾ , b.
<i>Endymion nutans</i> DUM. (= <i>Scilla nutans</i>)	8		GRANIER & BOULE, 1911.
<i>Scilla nutans</i>	8		DARLINGTON, 1926a.
" <i>peruviana</i>		16	HEITZ, 1926.
" <i>sibirica</i>	8		SCHNIEWIND-THIES, 1901.
		12	HEITZ, 1926.
<i>Chionodoxa Luciliae</i> Boiss.		18	MÜLLER, C., 1912.
<i>Eucomis bicolor</i> (?)	30-32(34?)		" " "
<i>Ornithogalum arabicum</i>	36-38		HEITZ, 1926.
" <i>arcuatum</i> STEV.	34		DELAUNAY, 1926b.
" <i>byzantinum</i>	16-(18)		HEITZ, 1926.
" <i>montanum</i> (= <i>byzantinum</i> ?)	16-(18)		" "
" <i>caudatum</i>	32-(36)		" "
" <i>fimbriatum</i> WILLD.	12		DELAUNAY, 1926b.

¹⁾ In small plerome cells in the root-tips SUSSENGUTH (1921) often found 8 or 12 chromosomes.

²⁾ *Scilla non scripta* and other species of this genus were referred to by VERTON (1893a).

³⁾ Division figures showing 1 and 2 extra chromosomes were also observed.

J ILIACEAE (continued)

Ornithogatum (continued)

	n	2n	
<i>Ornithogatum Hausknechtii</i> . .		(30)-32	HEITZ, 1926.
" <i>libanoticum</i> . .		10	" "
" <i>longibracteatum</i> .		52-66	" "
" <i>nanum</i> SIBITH et			
SM.		12	DELAUNAY, 1926b.
	6	12	" 1926c.
" <i>narbonense</i> . . .		14	HEITZ, 1926.
" <i>narbonense</i> ¹⁾ . .	14 ²⁾		SPRUMONT, 1928.
" <i>narbonense</i> L. .		16	DELAUNAY, 1926b.
	8	16	" 1926c.
" <i>nutans</i>		28-(32)	HEITZ, 1926.
" <i>nutans</i> ¹⁾	16 ³⁾		SPRUMONT, 1928.
" <i>oligophyllum</i>			
CLARKE		24	DELAUNAY, 1926b.
" <i>pater-familias</i> .		24-28	HEITZ, 1926.
" <i>pyramidale</i> . . .		ca. 32	" "
" <i>pyrenaicum</i> ¹⁾ .	32 ²⁾		SPRUMONT, 1928.
" <i>tempeskyanum</i> FR.			
et SINTH. . . .		18	DELAUNAY, 1926b.
	9	18	" 1926c.
" <i>tenuifolium</i> GUSS.		16	" 1926b.
" <i>tenuifolium</i>			
TAUSCH. . . .		16	" 1926c.
" <i>umbellatum</i> . .		24-28	HEITZ, 1926.
" <i>umbellatum</i> ¹⁾ .	27		SPRUMONT, 1928.
	45		" "
<i>Drimiopsis maculata</i> LINDL. .	32	64 ³⁾	BARANOV, 1926.
<i>Hyacinthus amethystinus</i> . . .		24	HEITZ, 1926.
" <i>orientalis</i>	8	16	BLAKESLEE, given by DAVEN-
			PORT, 1925.
	8		BELLING, 1925a, 1927a, 1927b;
			DARLINGTON, 1926a.
" <i>orientalis</i> L. . . .	8		NĚMEC, 1898b; HYDE, 1909.
		16	DARLINGTON, 1926b.
" <i>orientalis</i> var. <i>al-</i>			
<i>bion</i>		16	DE MOL, 1926c.

¹⁾ Satellites were present in this species.²⁾ Diploid and tetraploid forms with twice the number of chromosomes and twice the number of satellites were found in these species.³⁾ Four large satellites were found associated with four long chromosomes and twelve to sixteen small satellites seemed to be associated with short chromosomes in root-tip cells. Only in the early stages of pollen-mother-cell division could four large satellites and a number of small ones be seen, and they were associated with the nucleolus.

LILIACEAE (continued)

n

2n

Hyacinthus (continued)*Hyacinthus orientalis* var. *al-**bulus*

16 CARRUTHERS, 1921

" *orientalis* L. (f. *al-*
bulus JORD. pr. sp.
(Roamine blanch
hort.)

16 MÜLLER, C., 1912.

" *orientalis* Romaine
blanche

16 DE MOL, 1928c; HEITZ, 1925.

" *orientalis* var. *Bar-*
on von Tuyll

16 " " 1921a, b, 1923a, 1925c.

" *orientalis* var. *Bou-*
quet Royal

16 " " 1928c

" *orientalis* var. *Car-*
dinal Manning

16 " " "

" *orientalis* var. *Car-*
dinal Wiseman

27 " " 1921a, 1923a, 1925c

" *orientalis* var. *City*
of Haarlem

23 " " 1921a, b, 1923a, 1925c.

" *orientalis* var. *Co-*
dro

24 " " 1928c

" *orientalis* var. *Day-*
light

16 " " 1928b.

" *orientalis* var. *Dr.*
Lieber

27 " " "

" *orientalis* var. *Fle-*
vo

16 " " 1928c.

" *orientalis* var. *Flo-*
ra

16 " " "

" *orientalis* var. *Gar-*
ribaldi

16 " " 1923a, 1928b, c.

" *orientalis* var. *Gar-*
rick

28 " " 1921a, 1923a, 1925c.

" *orientalis* var. *Gen-*
neral de Wet

24 " " 1921a, 1923a, 1925c.

" *orientalis* var. *Gen-*
neral Pellissier

16 " " 1921a, b, 1923a, 1925c.

" *orientalis* var. *Ger-*
trude

16 " " 1921a, b, 1923a, 1925,
1926b, 1928b, c; BELLING,
1925b

" *orientalis* var. *Gi-*
gantea

24 DE MOL, 1921a, 1923a, 1928c.

" *orientalis* var.
Grand Maître

24 " " 1921a, 1923a, b, 1925,

LILIACEAE (continued)

n

2n

Hyacinthus (continued)

			1926a ¹), 1927a, c, 1928b, c; DARLINGTON, 1926b.
		23	DE MOL, 1927c.
<i>Hyacinthus orientalis</i> var.			
<i>Grand Maître giganteus</i>		24	DE MOL, 1921a, 1923a, 1928c.
<i>orientalis</i> var. <i>Hofdijk</i>		16	" " 1928c.
<i>orientalis</i> var. <i>Homerus</i>		16	" " 1921a, b, 1923a, 1928c.
<i>orientalis</i> (Italian variety from Castello)		16	" " 1928c.
<i>orientalis</i> var. <i>King of the Blues</i>		24	" " 1921a, b, c, 1923a, 1926a, 1927b, 1928c; DARLINGTON, 1926b.
	83		BELLING, 1925b, d.
<i>orientalis</i> var. <i>King of the Blues dwarf #1</i> ²)	24 ₂		" 1925.
		18	DE MOL, 1921c, 1923a, 1926a, 1927b.
<i>orientalis</i> var. <i>King of the Blues dwarf #2</i> ²)		21	DE MOL, 1921c, 1923a, 1926a, 1927b.
<i>orientalis</i> var. <i>King of the Yellows</i>		16	DE MOL, 1928b, c.
<i>orientalis</i> var. <i>La Grandesse</i>		28	" " 1921a, 1923a, 1928c.
<i>orientalis</i> var. <i>La Peyrouse</i>		25-26 ³)	DARLINGTON, 1926b
<i>orientalis</i> var. <i>Lady Derby</i>		24	DE MOL, 1921a, b, 1923a, 1927a, 1928c.
	12		BELLING, 1924
	83		" 1925d.

¹) Though DE MOL (1926a) examined 5 different types of somatic variation (flower coloration) none was found to show a different chromosome number.

²) These dwarf types originated from King of the Blues and are distinguished from it by their red violet flower color as well as their dwarf-like habit.

³) This species usually had one long chromosome more than the normal triploid (2n = 24), but division figures also showed 2 extra long chromosomes, so 2n = 25, 26.

LILIACEAE (continued)	n	2n	
<i>Hyacinthus</i> (continued)			
<i>Hyacinthus orientalis</i> var. <i>L'Innocence</i>		27	DE MOL, 1921a, 1923a, b, 1923b, c.
" <i>orientalis</i> var. <i>L'Unique</i>		16	DE MOL, 1923c.
" <i>orientalis</i> var. <i>Linnaeus</i>		16	" " 1923a.
" <i>orientalis</i> var. <i>Lord Balfour</i>		24	" " 1923a, 1923c.
" <i>orientalis</i> var. <i>Marchioness of Lorne</i>		16	" " 1921a, b, 1923a, b, 1925b, 1923b, c; BELLING, 1925b.
	8	16	DE MOL, 1923b.
" <i>orientalis</i> var. <i>Moreno</i>		24 ¹⁾	DARLINGTON, 1926b; DE MOL, 1927a.
" <i>orientalis</i> var. <i>Nimrod</i>		19	DE MOL, 1921a, b, 1923a, 1923c.
" <i>orientalis</i> var. <i>Queen of the Pinks</i>		24	DE MOL, 1921a, b, c, 1926a, 1928c; DARLINGTON, 1926b.
" <i>orientalis</i> var. <i>Red Star</i>		16	DE MOL, 1923c.
" <i>orientalis</i> var. <i>Roi des Belges</i>		16	" " 1923b, c.
" <i>orientalis</i> var. <i>Sir Wm. Mansfield</i>		16	" " 1923c.
" <i>orientalis</i> var. <i>Spring Glory</i>		16	" " "
" <i>orientalis</i> var. <i>Totilla</i>		30	DE MOL, 1921a, 1923a, 1927a, 1928c.
" <i>orientalis</i> var. <i>Totula</i>		30, 31 ²⁾	DARLINGTON, 1926b.
" <i>orientalis</i> var. <i>Uncle Tom</i>		16	DE MOL, 1927a, 1923c.
" <i>orientalis</i> var. <i>Van Speyk</i> (Leo XIII)		21	" " 1921a, b, 1923c.

¹⁾ DARLINGTON (1926b) considers this to be a triploid, though in one division an extra chromosome was present.

²⁾ In some cases the tetraploid number was exceeded.

LILIACEAE (continued)	n	2n	
<i>Hyacinthus</i> (continued)			
<i>Hyacinthus orientalis</i> var. <i>Yellow Hammer</i> . .		16	DE MOL, 1921a, b, 1926b, 1928b, c.
	8		DAVENPORT, 1923; DE MOL, 1923b; BELLING, 1924, 1925d 1927e.
	8	16	DE MOL, 1928a.
" <i>orientalis</i> (Flora × <i>Romaine blanche</i>)		16	" " 1921a, 1928c.
" <i>orientalis</i> (Gertrude × <i>Yellow Hammer</i>)		24, 36	" " "
		16	" " 1926b.
" <i>orientalis</i> (L'Innocence × <i>Romaine blanche</i>)		22	" " 1921a 1928c.
" <i>orientalis</i> (<i>Romaine blanche</i> × <i>Flora</i> .		16	" " " "
" <i>orientalis</i> (<i>Romaine blanche</i> × <i>Baron von Tuyl</i>) . . .		16	" " " "
" <i>romanus</i> DESF. (= <i>Bellevalia Romanus</i>)	4		" " 1921a; BLAKESLEE, given by DAVENPORT, 1925.
<i>Bellevalia acutifolia</i> (BOISS.) .		8	DELAUNAY, 1922—3.
" <i>acutifolia</i> (BOISSIER sub <i>Muscari</i>) M. .		8 ¹⁾ , 16 ²⁾	" 1926b.
" <i>acutifolia</i> (BOISS.) DELN.	4		" 1926c.
" <i>ciliata</i> NEES.		8	" 1926b.
" <i>Fominii</i> G. WOR. . .		8	" "
	4		" 1926c.
" <i>forniculata</i> (FOMIN.).		8	" 1922—3.
" <i>forniculata</i> (FOM. sub <i>Muscari</i>) M. . .		8	" 1926b
" <i>forniculata</i> (FOM) DELN	4		" 1926c.
" <i>Romana</i>	4		DARLINGTON, 1926b.
" <i>romana</i> RCHNB. . .		8	DELAUNAY, 1926b.
" <i>speciosa</i> G. WOR. . .		8	" "
	4		" 1926c.

¹⁾ In all the cells of one plant the 8 chromosomes were present, but one „S” chromosome lacked the small „Schenkel”.

²⁾ Found in root-tip cells of one plant.

LILIACEAE (continued)	n	2n	
<i>Bellevalia</i> (continued)			
<i>Bellevalia Webbiana</i> (Hyacinthus Webbianus) . .		8	DE MOL, 1921a.
" <i>Wilhelmsii</i> (STEV.) G. WOR.		8	DELAUNAY, 1922—3.
" <i>Wilhelmsii</i> G. WOR.	4	8	" 1926c.
" <i>zygomorpha</i> G. WOR.		8	" 1926b.
	4		" "
			" 1926c.
MUSCARI MILL. ¹⁾ .			
Section <i>Leopoldia</i> PARLAT.			
<i>Muscari caucasicum</i> BAKER . .		18	DELAUNAY, 1922—3, 1926b.
" <i>comosum</i> MILL. ²⁾ . .	9		" 1926c.
" <i>longipes</i> BOISS. . . .		18	" 1915, 1926b.
" <i>monstrosum</i> MILL. ²⁾ .	9 ³⁾	18	" 1922—3, 1926b.
" <i>tenuiflorum</i> TAUSCH. .		18	" 1826c.
" "	9		" 1915, 1922—3, 1926b.
" "		18, 20 ⁴⁾	" 1926c.
" "	9 ⁵⁾		" 1926a, 1926c.
Section <i>Botryanthus</i> BAKER ⁶⁾			
<i>M. argaei</i> HORT. ⁷⁾ . . .		18	DELAUNAY, 1915, 1926b.
" <i>botryoides</i> MILL. . . .		36—38	MÜLLER, C., 1912.
" <i>commutatum</i> GUSS. . .		36	DELAUNAY, 1915, 1926b.
" <i>latifolium</i> F. KIRK . .		ca. 44	" 1915.
" <i>neglectum</i>		45	" 1926b.
" <i>neglectum</i> GUSS. . . .		18, 36	" 1915.
" <i>pallens</i> M.B.		18, 19 ⁸⁾ ,	" 1926b.
" <i>polyanthum</i> BOISS. ⁷⁾ .		20 ⁹⁾ , 36 ⁸⁾	" 1926b.
" <i>neglectum</i>	24		STRASBURGER, 1883.
" <i>neglectum</i> GUSS. . . .		ca. 44	DELAUNAY, 1915.
" <i>pallens</i> M.B.		45	" 1926b.
" <i>polyanthum</i> BOISS. ⁷⁾ .		36	" 1926b.
		18	" 1915, 1926b.

¹⁾ Sections in ENGLER & PRANTL are II *Botryanthus* KNUTH & III *Leopoldia* PARLAT.

²⁾ This species showed satellites.

³⁾ In Fig. 1, one long chromosome showed one satellite attached. (DELAUNAY, 1926a)

⁴⁾ In two individuals, 2 extra (d) chromosomes were found.

⁵⁾ In Fig. 1 one long chromosome shows 2 satellites attached (DELAUNAY, 1926a).

⁶⁾ DELAUNAY (1926b) is uncertain about the correctness of placing the species here included, other than *M. latifolium* and *M. pallens*, in this section.

⁷⁾ This species showed satellites.

⁸⁾ Found in one individual.

⁹⁾ Found in two individuals.

LILIACEAE (continued)		n	2n	
<i>Muscari racemosum</i> MILL. . . .			ca. 44	DELAUNAY, 1915.
			45	" 1926b.
<i>Veltheimia</i> sp. (?)			20	MÜLLER, C., 1912.
<i>Lachenalia</i> sp. (?)			18-20	" " 1912.
<i>Yucca aloifolia</i> L.			54-56	" " 1910.
" <i>draconis</i> TOIR.			54-56	" " "
" <i>glauca</i> NUTTALL.				
(= <i>Y. angustifolia</i>)				
PURSH.)	6			FOLSON, 1916.
" <i>gloriosa</i>	10+ ¹⁾			BONNET, 1912.
" <i>guatemalensis</i> BAVK. (=				
<i>Y. Roezlii</i> hort).			54-56	MÜLLER, C., 1910.
" <i>recurva</i> SALISB.	25-27			WOYCICKI, 1911.
			54	" 1925.
" sp. (?)			44-46	MÜLLER, C., 1912.
<i>Dasyllirion acotrichum</i> ZUCC. .			20-24	WENT & BLAAUW, 1905.
<i>Sansevieria cylindrica</i>			102-104	HEITZ, 1926.
<i>Clintonia borealis</i>	ca. 12		ca. 20	SMITH, R. W., 1911.
<i>Smilicina racemosa</i>	24			MACALLISTER, 1913.
" <i>racemosa</i> (L.) DESF.	20-24			WOOLERY, 1915.
" <i>stellata</i> (L.) DESF.	12		24	MACALLISTER, 1906.
<i>Maianthemum bifolium</i>	14			LAWSON, 1913.
<i>Disporum Hookeri</i> NICHOLS. . .	5			" 1912. AKESLE
<i>Salomonía biflora</i> (WATT.) BRI-				RT, 192
TON	7-8			CARDIFF, 1906.
<i>Polygonatum multiflorum</i> ALL. .	12			VON BÖNICKE, 1911.
<i>Convallaria majalis</i>	16			STRASBURGER, 1888
" <i>majalis</i> L.	18			WIEGAND, 1899.
	18		ca. 36	" 1900.
	16			SAUER, 1909.
<i>Rhodea japonica</i> ROTH et				
KUNTH.	14			TAKAMINE, 1916.
<i>Aspidistra</i> (<i>Plectogyne</i>)			8	MÜLLER, C., 1912.
" spec.			ca. 32	HEITZ, 1926.
<i>Medeola virginiana</i>	7			ISHIKAWA, 1916.
<i>Paris quadrifolia</i>	12			ERNST, 1902; BOLLES, LEE,
				1925.
<i>Trillium grandiflorum</i>	ca. 6			ATKINSON, 1899.
	6			ERNST, 1902.
			12	GRÉGOIRE, 1912.
" <i>recurvatum</i>	6		12	COULTER & CHAMBERLAIN, 1903
" sp. (?)				KOMURO, 1924.
<i>Liriope graminifolia</i> BAK. var.				
<i>communis</i> MAXIM.	ca. 36			SHIMOTOMAI, 1927.

¹⁾ There were 10 „megachromosomes” and at least 40 small chromosomes.

LILIACEAE (continued)	n	2n	
<i>Ophiogon intermedius</i> DON.	56		DUDGEON, 1922.
<i>Smilax herbacea</i>	12		HUMPHREY, 1914.
	12-13		ELKINS, 1914
AMARYLLIDACEAE			
<i>Haemanthus</i> (?)		16-18	MÜLLER, C., 1912.
„ <i>albiflorus</i>		16 ¹⁾	HEITZ, 1926.
„ <i>Catherinae</i>		16 ¹⁾	„ „
„ <i>coccineus</i> var. <i>co-</i>			
<i>arctatus</i>		(14)-16 ¹⁾	„ „
„ <i>fimbriatus</i>		16-(18) ¹⁾	„ „
„ <i>Katharinae</i>	ca. 12		SVENSSON-STENAR, 1925.
	9 ²⁾	18	WOYCICKI, 1923.
„ <i>Katharinae</i> BAK.	8 ³⁾		„ 1927.
„ <i>multiflorus</i>		16-(18) ¹⁾	HEITZ, 1926.
„ <i>pubescens</i> var. <i>hir-</i>			
<i>sutus</i>		(14)-16 ¹⁾	„ „
<i>Galanthus cilicicus</i>		24	„ „
„ <i>Elwesii</i>		24	„ „
„ <i>Elwesii robustus</i> var.			
<i>praecox</i>		24	„ „
„ <i>nivalis</i>	12		SVENSSON-STENAR, 1925.
		24	HEITZ, 1926.
<i>Leucojum aestivum</i>		20-24	„ „
„ <i>autumnale</i>		14	„ „
„ <i>pulchellum</i>		20-24	„ „
„ <i>vernum</i>	12	24	OVERTON, E., 1893a.
		20	HEITZ, 1926.
<i>Nerine curvifolia</i>		22-(24)	„ „
„ <i>pusilla</i>		ca. 24	„ „
„ <i>rosea</i> HERB.		22	MÜLLER, C., 1912.
„ <i>sarwienensis</i>		22-(24)	HEITZ, 1926.
„ <i>undulata</i>		22	„ „
<i>Ungernia Severzovii</i> B.			
FEDTSCH		24 ⁴⁾	BARANOV & PODDUBNAJA, 1925
<i>Atamosco texana</i> GREENE (=			
<i>Zephyranthes texana</i>)	12		PACE, 1913.
<i>Eucharis Amazonica</i>	ca. 45		SVENSSON-STENAR, 1925.
<i>Narcissus biflorus</i> Curt. (= <i>N.</i>			
<i>peticus</i> × <i>N. ta-</i>			
<i>zetta</i>		24	STOMPS, 1919.

¹⁾ The chromosome complex for this species is considered to be: 1L1, 2-3 Lk, 0-1 l, 2-3 lK, 2Kk.

²⁾ The chromosome complex for this species is 1L1, 2Lk, 1L, 2 lk, 1 l, 2k.

³⁾ The chromosomes were described as 3 mega- and 5 micro-chromosomes.

⁴⁾ A certain number of the chromosomes were said to have satellites.

AMARYLLIDACEAE	n	2n	
<i>Narcissus</i> (continued)			
<i>Narcissus Balbocodium</i>		42	HEITZ, E., 1926.
„ <i>incomparabilis</i>		14	„ „ „
„ <i>multiflorus</i> „Ideal”		32	„ „ „
„ <i>poeticus</i> L.		16	STOMPS, 1919.
„ <i>poeticus</i>	7	14	DE MOL 1928a.
„ <i>poeticus ornatus</i>		16	STOMPS, 1919.
„ <i>poeticus poetarum</i>		16	„ „
„ <i>poeticus</i> var. „Albion”		16	„ „
„ <i>poeticus</i> var. „Glory of Lisse”		16 ¹⁾	„ „
„ <i>Poeticus</i> var. <i>Glorie van Lisse</i>	7		DE MOL 1928a.
„ <i>Pseudonarcissus</i>	7	14	DE MOL 1928a.
„ <i>Pseudonarcissus</i> × <i>Narcissus poeticus</i>		28	DE MOL, 1926a, 1927c.
		14	„ „ 1927c.
<i>Pancratium ceylanicum</i>		90-100	HEITZ, 1926.
„ <i>speciosum</i>		ca. 90	„ „
<i>Hippeastrum rutilum</i> B. <i>fulgidum</i>		(22)-24	„ „
<i>Lycoris radiata</i> HERB. ²⁾	113	33	NISHIYAMA, 1928b
„ <i>sanguinea</i> MAXIM.	11	22	„ „
<i>Agave americana</i> L.		20	MÜLLER, C., 1912.
„ <i>virginica</i> L.	12		SCHAFFNER, 1909.
„ <i>virginica</i> (?)	12	24	MÜLLER, C., 1912.
<i>Fourcroya altissima</i>		ca. 50	HEITZ, 1926.
„ <i>Lindenii</i>		ca. 40	„ 1926.
<i>Beschornea superba</i> HORT (?)		ca. 50	MÜLLER, C., 1912.
<i>Alstroemeria brasiliensis</i>			
„ SPRENG.	8		TAYLOR, 1926.
„ <i>chilensis</i> LODD.	8		STRASBURGER, 1882.
„ <i>pelegrina</i> L.	8		GUIGNARD, 1884.
„ (?)	8		„ 1889; STRASBURGER 1888.
„ <i>psittacina</i>	8		GUIGNARD, 1891b.
„ <i>psittacina</i> (= <i>A. pulchella</i>)	9		SVENSSON-STENAR, 1925.
<i>Curculigo recurvata</i>	ca. 10		„ „
<i>Anigosanthus flavidus</i> Red. Lil.	6		STENAR, 1927a.

¹⁾ Occasionally 14 chromosomes were found.

²⁾ This species shows very irregular meiotic divisions.

DIOSCOREACEAE

<i>Dioscorea caucasica</i> LIPSKY . . .	10		MEURMAN, 1925a, b.
" <i>sinuata</i>	12		SUSSENGUTH, 1920.
	ca. 12	24	" 1921.
" <i>sinuata</i> VELL.	17-18		MEURMAN, 1925a, b.
<i>Tamus communis</i> L.	24		" 1925a, b.

IRIDACEAE

<i>Crocus asturicus</i>		(22)-24	HEITZ, 1926.
" <i>cancellatus</i>	5	10	" "
" <i>iridiflorus</i>		24-(26)	HEITZ, 1926.
" <i>pulchellus</i>		12	" "
" <i>sativus</i> L.		24	HIMMELBAUR, 1926.
" <i>Tomasianus</i>		ca. 18	HEITZ, 1926.

IRIS¹⁾.Section *Onocylus*

<i>Iris atropurpurea</i> BAKER. . .		20	SIMONET, 1928c.
" <i>Lortetii</i> BARBEY		20	" "
" <i>Sari</i> SCHOTT		20	" "
" <i>soforana</i> FOSTER		20	" "

Section *Pogoniris*

<i>Iris chamaeiris</i> BERTOL. . . .		40	SIMONET, 1928a.
" <i>cypriana</i> FOSTER et BAKER	24	48	" "
	24		" "
<i>Iris pallida</i>	12		MIYAKE, 1905
" <i>pallida</i> LAM.	12	24	SIMONET, 1928a.
	12		" 1928b.
" <i>pallida</i> var. <i>dalmatica</i> . .	12+few ₁		LONGLEY, 1928.
" <i>pumila</i> L. var. <i>coerulea</i>			
hort.		40	SIMONET, 1928a.
" <i>variegata</i> L.	12	24	" "

Section *Evansia*

<i>Iris tectorum</i> MAXIM.		28	SIMONET, 1928a.
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Section *Apogon*

<i>Iris acoroides</i> SPACH.	17	34	SIMONET, 1928a.
" <i>aurea</i> LINDL.	20	40	" "
" <i>desertorum</i>	12		GUIGNARD, 1891b.
" <i>desertorum</i> HORT.	16		SIMONET, 1928a.
" <i>foetidissima</i> L.		40	" "
" <i>fulva</i> KER-GAWL.	21	42	" "
" <i>graminea</i> L.	17	34	" "
" <i>Kaempferi</i> SIEBOLD	12	24	" "
" <i>Kaempferi</i> var. <i>hortensis</i>			
MAKINO.	12	24	KAZAO, 1928.

¹⁾ The following species are classified under sections according to DYKES (1913).

³⁾ *Iris filifolia* HORT. var. La France investigated by SIMONET 1928a was a form of *Iris xiphium praecox*.

IRIDACEAE (continued)	n	2n	
<i>Iris</i> (continued)			
<i>Iris stolonifera</i> MAXIM		44	SIMONET, 1928c.
" <i>vaga</i> FOSTER		44	" "
Section <i>Juno</i> .			
<i>Iris bucharica</i> FOSTER		22	SIMONET, 1928c.
Section <i>Gynandiris</i>			
<i>Iris sisyrinchium</i> L.		24	SIMONET, 1928a.
Section (?) ¹⁾			
<i>Iris cristata</i>	12		LONGLEY, 1928.
" <i>ensata</i>	20		" "
" <i>flavescens</i> var. <i>baxteri</i> . . . 12+few ₁			" "
" <i>flavescens</i> var. "Canary bird"	12+few ₁		" "
" <i>florentina</i>	12		MIYAKE, 1905.
" <i>florentina</i> L.	12		SIMONET, 1928b.
" <i>florentina</i> A. GRAY.	16 ₃ ²⁾	48	KAZAO, 1928.
" <i>germanica</i>	12		STRASBURGER, 1900.
" <i>germanica</i> HORT.	12		SIMONET, 1928b.
" <i>germanica</i> var. <i>atropurpu-</i> <i>rea</i>	12+10? ₁		LONGLEY, 1928.
" <i>germanica</i> HORT. var. <i>Ca-</i> <i>lypso</i>		24	SIMONET, 1928b.
" <i>germanica</i> var. <i>Kharput</i> . . 12+few ₁			LONGLEY, 1928.
" <i>germanica</i> var. <i>King Ed-</i> <i>ward VII</i>	12+few ₁		" "
" <i>germanica</i> HORT. var. <i>Lord</i> <i>Mayor</i>		24	SIMONET, 1928b.
" <i>germanica</i> HORT. var. <i>Mme</i> <i>Chereau</i>		24	" "
" <i>germanica</i> var. <i>Purple King</i>	12+several ₁		LONGLEY, 1928.
" <i>germanica</i> var. <i>Purple</i> <i>Prince</i>	12+19? ₁		LONGLEY, 1928.
" <i>gracilipes</i> L.	18	36	KAZAO, 1928.
" <i>japonica</i> THUNB.		54	" "
" <i>laevigata</i> FISCH. et MEY. . . 16		32	" "
" <i>lurida</i> SOLAND	12		SIMONET, 1928b.
" <i>macrantha</i> HORT. (AMAS) . . 24			" "
" <i>neglecta</i> HORN.	12		SIMONET, 1928b.
" <i>plicata</i> LAM.	12		SIMONET, 1928b.
" <i>sambucina</i> L.	12		SIMONET, 1928b.
" <i>sambucina</i> var. <i>Mephisto-</i> <i>pheles</i>	12+few ₁		LONGLEY, 1928.

¹⁾ The following species were not classified under sections.

²⁾ Late diakinesis of pollen mother cell division showed about 16 trivalent chromosomes.

IRIDACEAE (continued)	n	2n	
<i>Iris</i> (continued)			
<i>Iris squalens</i>	12		STRASBURGER, 1900.
" <i>trojana</i> A. KERN.	24		SIMONET, 1928b.
" <i>variegata</i> L.	12		" "
" <i>variegata</i> var. <i>Mrs. E. A.</i>			
Barr	12+few ₁		LONGLEY, 1928.
" <i>variegata</i> var. <i>Princess of</i>			
Teck	12+few ₁		" "
" <i>variegata</i> var. <i>Samson</i> . .	12+few ₁		" "
" sp. (?) varieties:			
<i>Allies</i> HORT.		ca. 30	SIMONET, 1928b.
<i>Ambassadeur</i> HORT.	12	48-50	" "
<i>Ballerine</i> HORT.		36	" "
<i>Jacquesiana</i>	12+2 ₁		LONGLEY, 1928.

LONGLEY (1928) for a number of *Iris* varieties gives the following approximate chromosome numbers:

n = 12+ few univalents:

Calypso; *Caprice*; *Count de St. Claire*; *Delicata*; *Kkedive*; *La Tendresse*; *Leonidas*; *L'esperance*; *Mandalisca*; *Mme Chereau*; *Mme, Pacquette*; *Morphee*; *Mrs. G. Darwin*; *Mrs. H. Darwin*; *Penelope*; *Rembrandt*; *Sir Walter Scott*; *Unique*.

n = 12+ some univalents:

Amabilis; *Neglecta*; and *William Wallace*.

n = 12+ several univalents: *Her Majesty*.

<i>Iris Pseudacorus</i> × <i>I. versicolor</i>	24 ¹⁾	SAWYER, 1925.
<i>Hermodactylus tuberosus</i> MILL.	20	SIMONET, 1928a.
<i>Sisyrinchium striatum</i> SM. . .	9	DE VILMORIN & SIMONET, 1927b
<i>Dierama pendulum</i> BAKER . .	10	" " " "
<i>Gladiolus primulinus</i> hyb. var.		
hort. <i>La Muerthe</i>	30	" " " "
<i>Freesia refracta</i> KLATT. . . .	22	TAYLOR, 1926.

SCITAMINEAE

MUSACEAE

<i>Musa acuminata</i> var. <i>Simiarum</i>	22(?)	WHITE, 1928.
" <i>basjoo</i> SIEB. et ZUCC. . .	11	D'ANGREMOND, 1914.
" <i>basjoo</i> var. <i>Alisanag</i> . .	24	WHITE, 1928.
" <i>basjoo</i> var. <i>Manang</i> . . .	24	" "
" <i>basjoo</i> var. <i>Martini</i> . .	24	" "
" <i>basjoo</i> (?) var. <i>Lidi</i> . . .	23	" "
" <i>basjoo</i> (?) var. <i>Rodoc</i>		
<i>Clamp</i>	24	" "
" <i>Cavandishii</i> var. <i>Bungulan</i>		
(TUMOC)	32	" "

¹⁾ This number of chromosomes was found arranged in pairs in the one-celled zygote.

MUSACEAE (continued)	n	2n	
<i>Musa</i> (continued)			
<i>Musa Cavendishii</i> var. <i>Chinese</i>		32	WHITE, 1928.
" <i>Cavendishii</i> var. <i>Poolei</i> . .		32	" "
" <i>Cliffortiana</i> var. <i>asperma</i>		24	" "
" <i>Crachycarpa</i> var. <i>Back.</i>			
#72.		24	" "
" <i>ensele</i> var. <i>Abyssinian</i> .		20	" "
" <i>Gilletti</i>		18(?)	" "
" <i>ornata chittagong</i>	11		D'ANGREMOND, 1914.
" <i>paradisiaca</i> var. <i>Black</i>			
<i>Stemmed Gros Michel</i> . .		32	WHITE, 1928.
" <i>paradisiaca</i> var. <i>Black</i>			
<i>Stemmed Horse Plantain</i>		32	" "
" <i>paradisiaca</i> var. <i>Black</i>			
<i>Stemmed Maiden Plant.</i>		32	" "
" <i>paradisiaca</i> var. <i>Burro</i>			
<i>Apple Plantain</i>		32	" "
" <i>paradisiaca</i> var. <i>Cenizo</i>			
<i>Apple Plantain</i>		32	" "
" <i>paradisiaca</i> var. <i>Chama-</i>			
<i>luco Apple Plantain</i> . .		32	" "
" <i>paradisiaca</i> var. <i>Congo</i> .		32	" "
" <i>paradisiaca</i> var. <i>Dwarf</i>			
<i>Horse Plant</i>		32	" "
" <i>paradisiaca</i> var. <i>Giant</i>			
<i>Fig</i>		32	" "
" <i>paradisiaca</i> var. <i>Green</i>			
<i>Red</i>		32	" "
" <i>paradisiaca</i> var. <i>Gros Mi-</i>			
<i>chel</i> ¹⁾		32	" "
" <i>paradisiaca</i> var. <i>Guyuran</i>		32	" "
" <i>paradisiaca</i> var. <i>Horse</i>			
<i>Plantain</i>		32	" "
" <i>paradisiaca</i> var. <i>Laca-</i>			
<i>tan</i> ¹⁾		32	" "
" <i>paradisiaca</i> var. <i>Maiden</i>			
<i>Plant</i>		32	" "
" <i>paradisiaca</i> var. <i>Marta-</i>			
<i>bon Dacca</i>		24	" "
" <i>paradisiaca</i> var. <i>Red</i> . .		32	" "
" <i>paradisiaca</i> var. <i>Red</i>			
<i>plantain</i>		32	" "

¹⁾ Three varieties, from Panama, Venezuela and Gros Michel (?), of Sierra Leon were investigated, as were three varieties of *Lacatan* from the same countries.

MUSACEAE (continued)	n	2n	
<i>Musa</i> (continued)			
<i>Musa paradisiaca</i> var. <i>seminifera</i>		24	WHITE, 1928.
„ <i>paradisiaca</i> (?) var. F. H. B. 57246.		32	„ „
„ <i>rosacea</i>	12	24	TISCHLER, 1921-22.
„ <i>sanguinea</i>		24	WHITE, 1928.
„ <i>sapientium</i> var. „ <i>Appelbacove</i> ”	11-12		„ „
„ <i>sapientium</i> var. <i>Dole</i> . .	8		D'ANGREMOND, 1914.
„ <i>sapientium</i> var. „ <i>Gros Michel</i> ”	16		TISCHLER, 1910.
„ <i>sapientium</i> var. <i>Kladi</i> .	24		D'ANGREMOND, 1914.
„ <i>sapientium</i> var. <i>Radjah Siam</i>	16		TISCHLER, 1910.
„ <i>textilis</i> var. <i>Bungulanon</i>		20	„ „
„ <i>textilis</i> var. <i>Libuton</i> . .		20	WHITE, 1928.
„ <i>textilis</i> var. <i>Maguindanas</i>		20	„ „
„ <i>textilis</i> var. <i>Puteean</i> . .		20	„ „
„ <i>textilis</i> var. <i>Sinaba</i> . . .		22	„ „
„ <i>textilis</i> var. <i>Tangongon</i> .		20	„ „
„ <i>Zebrina</i>		24	„ „
„ <i>Zebrina</i> var. <i>cerifera</i> . .		24	„ „
„ sp. (?) ¹⁾		12	„ „
„ <i>paradisiaca</i> (?) ²⁾ varieties:		36	„ „
Amrita Sogar; Bangalan #1; Bluefield; Brazilian; Bumulan; Chek Tuk; Chevalier; Chuoi Cau Tay; Chuoi Cau Xiem; Chuoi Gia Cui; Chuoi Gia Lung; Coll. #106; Coll. #111; Embun; Kale; Kanara; Kelat; Klui Hom Keo; Laknau; Masak Hijau; Nand Aboeboe; Nand. Kabaker; Pisang Ambon Loemoet; Pisang Ambon Poetik; Pisang Mangsan; Pisang Masan; Pisang Sangate; Pisang Seroeanta; Pisang Sri; Pisang Sri Bali; Rotan; Sabang Castila; Susu; Tandoek Kambing; The Hmwe; (Unid) Vima-ma type.			
<i>Musa</i> sp. (?) ³⁾ varieties			
<i>Ambong Koerik</i>		32	WHITE, 1928.
<i>Baloko</i>		32	„ „
<i>Bastard Hemp</i>		24	„ „
<i>Bat Nose</i>		32	„ „

¹⁾ The species though unidentified showed resemblances to *M. basjoo* and *M. seminifera*.

²⁾ WHITE (1928) states that the following 36 clones having $2n = 36$ were for the most part considered as varieties of *Musa paradisiaca*.

³⁾ WHITE (1928) has not named the species of the following varieties.

MUSACEAE (continued)	n	2n	
<i>Musa</i> sp. (?) varieties (continued)			
<i>Bayalany</i>	20		WHITE, 1928.
<i>Bolo</i>	24	"	"
<i>Butuan</i>	32	"	"
<i>Chek Ambong Plok</i>	32	"	"
<i>Chek Ambong Sneng</i>	32	"	"
<i>Chek Pong Man Pluc</i>	24	"	"
<i>Chuai Cau Trang</i>	24	"	"
<i>Chuai Cha</i>	32	"	"
<i>Chuai Gia Huong</i>	32	"	"
<i>Chuai Tien Huong</i>	24	"	"
<i>Coolie Honghseng</i>	24	"	"
<i>Decosta White</i>	32	"	"
<i>Djantan</i>	24	"	"
<i>Dorado</i>	28	"	"
<i>Galimba Pula</i>	24	"	"
<i>Guineo Prieto</i>	32	"	"
<i>Inarna</i>	22(?)	"	"
<i>Inarnibal</i>	24	"	"
<i>Kacoloan</i>	24	"	"
<i>Kalibo</i>	32	"	"
<i>Kapas</i>	32	"	"
<i>Klui Kran</i>	24	"	"
<i>Lady Finger</i>	24	"	"
<i>Manzana</i>	32	"	"
<i>Martinique</i>	32	"	"
<i>Masak Sahari</i>	32	"	"
<i>Morong Datu</i>	24	"	"
<i>Morong Principe</i>	32	"	"
<i>Morado Pula</i>	32	"	"
<i>Morado Puti</i>	32	"	"
<i>#20 Munden</i>	24	"	"
<i>Nandow Kababar (A)</i>	20	"	"
<i>Nandow Kababur (B)</i>	24	"	"
<i>Nandow Mamboef Diodi</i> . .	32	"	"
<i>Pacol</i>	24	"	"
<i>Pisang Boeloei</i>	32	"	"
<i>Pisang Cocos</i>	32	"	"
<i>Pisang Galipapo</i>	32	"	"
<i>Pisang Kawahi (Galela)</i> . .	24	"	"
<i>Pisang Kawahi (Tobelo)</i> . .	24	"	"
<i>Pisang Pandok Beureum</i> . .	24	"	"
<i>Pomme Java</i>	32	"	"
<i>Pulutan</i>	24	"	"
<i>Putran</i>	24	"	"

MUSACEAE (continued)	n	2n	
<i>Musa</i> sp. (?) ¹⁾ varieties (continued)			
<i>Raja</i>	32	WHITE, 1928.	
<i>Sabang Tagolog</i>	24	" "	
<i>Serendeh</i>	32	" "	
<i>Sinaroksoh</i>	24	" "	
<i>Tadio</i>	32	" "	
<i>Ta Ni Pa</i>	32	" "	
<i>Tiparot</i>	40	" "	
<i>Tudoc</i>	32	" "	
(Unid.) <i>Sanderson's</i>	24	" "	
(Unid.) <i>from Fr. Indo-China</i>	32	" "	
(Unid.) <i>from Porto Rico</i>	32	" "	
<i>Valery</i>	32	" "	
<i>Viente Cohol</i>	24	" "	
<i>Vi-ma-ma</i>	32	" "	
<i>Yale Bale</i>	24	" "	
<i>Musa</i> sp. (?) „ <i>Alisanay</i> ” × <i>M.</i>			
<i>seminifera</i>	24	" "	
„ sp. (?) „ <i>Apple Plaintain</i> ”			
× <i>M.</i> „ <i>Bastard Hemp</i> ”	28	" "	
	32	" "	
„ sp. (?) „ <i>Bastard Hemp</i> ”			
× <i>M. seminifera</i>	24	" "	
	23	" "	
„ sp. (?) „ <i>Martini</i> × <i>M.</i>			
<i>seminifera</i>	24	" "	
„ hybrid „ <i>Dunlap's Seed-</i>			
<i>ling</i> ”	40	" "	
ZINGIBERACEAE			
<i>Zingiber officinale</i>	22	SUGIURA, 1928a.	
CANNACEAE			
<i>Canna</i> sp. (?)	6	GRÉGOIRE, 1912.	
„ <i>flaccida</i>	18	HEITZ, 1926.	
„ <i>glauca</i>	9	HONING, 1923.	
„ <i>indica</i> L.	3	6 WIEGAND, 1900.	
„ <i>indica</i>	8	KOERNICKE, 1903.	
	9 ²⁾	HONING, 1923.	
	9 ³⁾	BELLING, 1921.	
	27 ³⁾	" "	
	2		

¹⁾ See footnote 3, page 408

²⁾ HONING (1923) states that in 1915 he had found $2n = 16$.

³⁾ According to TISCHLER (1921—22) Kuwada had determined in 1918 and verbally reported that 18 and 27 were the diploid numbers of *Canna indica*.

CANNACEAE (continued)	n	2n	
<i>Canna</i> (continued)			
		18 ¹⁾	HEITZ, 1926.
	9	18	TOKUGAWA & KUWADA ²⁾ , 1924.
		27	" " " 1924.
<i>Canna indica</i> var. Firebird. . .	9 ₃		BELLING, 1925c.
" <i>indica</i> var. Gladiator. . .	9 ₃		" "
" <i>indica</i> var. Pennsylvan-			" "
nia	variable,		" "
	tri, bi &		
	univalents		
MARANTACEAE			
<i>Maranta sanguinea</i>	12		SUSSENGUTH, 1920.
" sp.	16		VON BOENICKE, 1911.
<i>Thalia dealbata</i>		12	SUSSENGUTH, 1921.
MICROSPERMAE			
BURMANNIACEAE			
<i>Thismia clandestina</i> ³⁾	6-8		MEYER, K., 1909.
<i>Burmanniea candida</i>	12		ERNST & BERNARD, 1912;
			SCHOCH, 1920.
" <i>championii</i>	12		ERNST & BERNARD, 1912.
	32-36		SCHOCH, 1920.
" <i>coelestis</i> DON.	30-36		ERNST & BERNARD, 1912.
" <i>coelestis</i>	32-36		SCHOCH, 1920.
" <i>disticha</i>	20-22		" "
ORCHIDACEAE	n	2n	
<i>Cypripedium barbatum</i>	16	32	STRASBURGER, 1888
" <i>insigne</i>		24-36	HEITZ, 1926.
" <i>parviflorum</i>	11		PACE, 1907.
" <i>pubescens</i>	11		" "
" <i>spectabile</i>	11		" "
<i>Paphiopedilum insigne</i>	ca. 12		AFZELIUS, 1916.
	8-9		SUSSENGUTH, 1920.
<i>Ophrys myodes</i> JACQ.	11-12		SEMIANINOVA, 1925.
<i>Orchis maculata</i>	16		STRASBURGER, 1888.
	10	20	FUCHS & ZIEGENSPECK, 1924.
<i>Himantoglossum hircinum</i>	16		STRASBURGER, 1888.
" <i>hircinum</i> SPR.	12		HEUSSER, K., 1915.
<i>Herminium monorchis</i> R. BR.	12-13	24-26	BARANOV, 1925.
<i>Nigritella nigra</i>	30	60	AFZELIUS, 1928.

¹⁾ Two garden varieties were examined.²⁾ For names of varieties investigated by TOKUGAWA & KUWADA (1924) see GAISER (1926).³⁾ ERNST & BERNARD believe that MEYER investigated *Thismia javanica*.

ORCHIDACEAE (continued)

<i>Epipactis falcata</i>		24	SUGIURA, 1928a.
" <i>palustris</i>	12		FRIEMANN, 1910.
<i>Gastroda elata</i>	8-9	16-18	KYSANO, 1915.
<i>Spiranthes australis</i>	12		TAKAMINE, 1916.
<i>Gyrostachys cernua</i>	30		PACE, 1914.
" <i>gracilis</i>	15		" "
<i>Listera ovata</i>	16		GUIGNARD, 1891b; ROSENBERG, 1905.
		34	GREGOIRE, 1912.
" <i>ovata</i> R. BR.	16		GUIGNARD, 1884.
		32-34	MÜLLER, C., 1912.
" <i>sp.</i> (?)	16		GUIGNARD, 1889.
<i>Ncottiu nidus avis</i>	16		GUIGNARD, 1884.
" <i>nidus avis</i> RICH	18		MODILEWSKI, 1918.
<i>Calopogon pulchellus</i> R. BR. .	ca. 13	ca. 26	PACE, 1909.
<i>Zygopetalum Mackayi</i> HOOK .	ca. 24		SUSSENGUTH, 1923.
<i>Cymbidium Lowianum</i>	9-10		" 1920.
<i>Oncidium praetextum</i> RCHB. fil.	28		AFZELIUS, 1916.
<i>Ionopsidium acaule</i> RCHB. . .	12	24	CHIARUGI, 1928.
" <i>Savanium</i> (CAR.)			
BALL	16	32	" "
<i>Gymnadenia conopsea</i>	(16)?		STRASBURGER, 1888.
	8		CHODAT, 1924.
	10	20	FUCHS & ZIEGENSPECK, 1924.

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¹⁾ This paper is included in *Lunds. Univ. Arsk. Bd.* 21, the title page of which is dated 1925, though the paper is dated 1926.

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